

**FORMING A COMPLETE RECORD OF THE PROCEEDINGS OF ALL PUBLIC COMPANIES.**

[PRICE 6d.

June 10, 1893.



THE MIDLAND WAGON COMPANY.

Capital £50,000, in 1000 shares of £50 each.—Provisionally registered.  
PROVISIONAL DIRECTORS.  
GEORGE WILSON CHAMBERS, Esq., Clough House, Rotherham.  
JOHN ALDER, Esq., Wellgate House, Rotherham.  
WILLIAM OWEN, Esq., Wellgate, Rotherham.  
ROBERT CUTHBERT HOYLE, Esq., Aughton Hall.  
JAMES SOLLY, Esq., Tolland Hall, Tipton, Staffordshire.  
CONSULTING ENGINEER.—Wm. Pryor Marshall, Esq., C.E., Newhall-st., Birmingham.  
SOLICITORS.—Messrs. Hoyle and Marsh, Rotherham.  
SECRETARIES (pro tem.)—Mr. Robert Wright, accountant, Birmingham; Mr. John Clarke, land agent, Rotherham.

This company is formed for the purpose of purchasing and supplying railway waggons to coal owners and others trading upon the Midland, London and North Western, and other railways.  
Waggons will be let by this company at an annual rental, which, after payment for repairs, will realise a sufficient amount, not only to reimburse all costs of management, and pay to the shareholders a dividend of 7½ per cent. per annum (to be paid half-yearly), but also to leave an ample fund as reserved capital, to be laid out in the construction of new waggons, or in such other ways as may be deemed most desirable.  
Proposals have been made by Mr. W. A. Adams, of Birmingham, wagon owner and builder, to supply to the company 300 waggons of a 40 ft and proper construction, 200 to be placed forthwith at the company's disposal, and the remainder as may be required; and to repair and maintain the same for a term of nine years, at a stated amount.

A considerable portion of the capital is already agreed to be subscribed, and a number of waggons are now complete and ready to be let.  
A Deed of Settlement will be forthwith prepared and registered. £5 per share will be called immediately, and the remainder in calls not exceeding 10 per cent., and at intervals of not less than three months.  
The company will be under the management of a committee of five shareholders, holding not less than 20 shares each, of whom three shall form a quorum, and two of whom shall retire annually, but shall be eligible for re-election.

A depot for waggons will be established at Masboro', near to the line of the Midland Railway, where it is intended the public offices of the company shall be situated, and the business of the company transacted.  
The temporary offices of the company will be held at the offices of Mr. John Clarke, land agent, Wellgate, Rotherham, where applications for waggons for hire, as also for shares, may be made. Preference will be given to applicants for shares from parties hiring or requiring waggons.  
HOYLE & MARSH, solicitors, Rotherham.

THE CUMBERLAND HEMATITE IRON ORE COMPANY.

To be conducted on the "COST-BOOK SYSTEM."—No Deed to be signed.  
Capital £50,000, in 50,000 shares at £1 each, to be paid up on allotment, and issued in Certificates to bearer.

TEMPORARY OFFICES OF THE COMPANY.—30, BUCKLESBURY.  
This company is formed for the purpose of working hematite iron ore in the Frinton Parks mining district, situated within six miles of the town of Whitby.  
Prospectuses, with printed forms of application for shares, are now in the press, the particulars of which will be advertised in the Mining Journal of next week.  
HENRY HUNTER, Sec.

TAMAR MARIA COPPER MINING COMPANY.

The lodes running through which set are a continuation of the south lodes of the Devon Great Consols and Bedford United Mines.  
Divided into 10,000 scrip shares of £1 each, 10s. to be paid on allotment.  
One-third part are taken by the present proprietors.  
(Committee of Management to be appointed at the first meeting.)

SUPERINTENDING AGENT.—Capt. J. Richards, Chief Agent of Devon Great Consols.  
RESIDENT AGENT.—Capt. Edward James, of Devon Great Consols.  
PROMOTER.—Capt. John Sims, Slimeford, Calstock.  
BANKERS.—Devon and Cornwall Bank, Calstock; Messrs. Barclay, Bevan, and Co., London.

OFFICES.—19, ROYAL EXCHANGE, LONDON.  
This mine, situated in the parish of Calstock, in the county of Cornwall, is surrounded by the Devon Great Consols, Bedford United, Drake Walls, Hingston Down Consols, Gawton United, Tavy Consols, Wheal Edward, and Wheal Arthur; and extends 400 fms. on the course of the lodes, in a most congenial stratum of killas.  
Since the discovery of Devon Great Consols, in 1845, many companies have been started to develop the mineral resources of its immediate neighbourhood, more especially with a view of tracing the same lodes; it is now satisfactorily ascertained, on the authority of the chief agent of that mine, that not only are the south lodes of that wonderful mine traversing this set, but that those of the Bedford United Mines also run through its entire length; and which opinion is fully borne out by other most respectable agents in the neighbourhood.

The acquisition of this property has long been sought by several leading houses connected with mining, and is at last granted to the present proprietors at most liberal dues—viz., 1-15th. It is intended that the operations of the mine shall be conducted under the immediate superintendence of Capt. James Richards; which fact, and a reference to the submitted reports, will satisfy all interested in mining that this adventure will present more than ordinary chances of success.  
Applications for prospectuses, plans, and shares, may be made at the office of the company, 19, Royal Exchange, London.

REPORTS.

Report of Capt. JAMES RICHARDS, of the Devon Great Consols Mine.  
Tavistock, April 15, 1853.—This mineral property is situated in the parish of Calstock, Cornwall; it is very extensive, being 400 fms. on the course of the lodes, of which there are several comprised within its limits, having the same east and west bearing as the most productive of the district; there is also a very fine cross-course running north and south through the whole length of the set, with a slight underlie to the west. Three of the lodes have been opened upon, and sufficient has been done to enable me to speak of their character and probable results. The most northerly one is about three feet wide composed of capel, mudstone, and copper ore; the next is four feet wide, on which a shaft has been sunk on its course, and is precisely similar in character to that of the Wheal Thomas lode in Devon Great Consols, being composed of fine capel, mudstone, pryan, and splendid gossan. The southern one has been opened upon by shaft pits, and is also to be seen in the South Devon Great Consols, about 40 fms. to the eastern boundary: it is four feet wide, composed of splendid gossan, pryan, and capel. The cross-course before referred to is a very fine one; an adit level has been driven 16 fms. thereon, and should be continued, as it will come in and prove the lode a 50 fms. in depth. There is no doubt of this piece of ground, it being surrounded by many most promising concerns; and undoubtedly the south lodes of Devon Great Consols go through the set. I beg to say, in conclusion, that looking at the geological features of the property (the lodes being situated in the prevailing stratum of the district, and bordering on the granite, with a very fine cross-course), and the lodes being a continuation of those passing through Wheal Marquis, the Wheal Thomas lode (now yielding profits), with others of equal promise, that, when properly developed, this property will prove highly remunerative.

JAMES RICHARDS.

Report of Capt. JAMES BUNT, of the Devon Great Consols Mine.  
Tavistock, April 15, 1853.—I have examined this property, and find there are several very promising lodes running east and west through the set, and also a magnificent cross-course four feet wide, running about north and south, underlie about two feet and a half feet in a fathom. No. 2 is what I consider to be the Devon Great Consols Wheal Thomas lode; this lode is four feet wide, and underlying north two feet in a fm.; this has been opened upon for 50 fms. in length; a shaft has been sunk on the course of this lode, composed of a first-rate gossan, spar, and, with very favourable indications, the surrounding stratum being of light mineralised clay-slate; I have, therefore, no doubt but that in depth this lode will be found profitably productive. No. 3 is a magnificent lode, and has been opened upon also in this set; it is three feet wide, underlying south one and a half feet in a fm.; it is composed of gossan, spar, and, with other good indications. The other lodes are also of great promise, and in my opinion only require a moderate amount of capital to make this concern highly profitable.

JAMES BUNT.

Devon Great Consols Mine, Tavistock, April 14.—This set is very extensive, being 400 fms. on the course of the lodes, and 500 fms. north and south; it comprises within its limits several east and west lodes; I find one of them to be from three to four feet wide, with a northern underlie of about two feet in a fm. It is composed of gossan of a very excellent quality, with capel, spar, &c. This is the same which in Wheal Thomas (Devon Great Consols) is making good profits. A little to the south of this second lode has been discovered, of the same favourable character. It is very evident that the south lodes of Devon Great Consols traverse this set, besides a large masterly cross-course, on which a level has been driven, and if continued, will intersect the whole of the east and west lodes at a depth of 50 fms. Taking into consideration the very favourable indications which these lodes present, the general good features of the ground, and the great productiveness of the adjoining mines—Devon Great Consols, Bedford United, and Hingston Down Consols—I have every reason to believe that similar good results will follow this undertaking, if properly developed.

WILLIAM CLYMO.

Tavistock, April 18.—This mine is situated in the parish of Calstock, Cornwall, and is in extent 400 fms. on the course of the lodes; a continuation of the south lodes of Devon Great Consols, including Wheal Thomas, and the Bedford United Mines. At the west boundary of the South Devon Great Consols there is a very promising lode, from three to four feet wide, with well-defined walls, and running through the Tamar Maria Mine; it produces a good gossan, &c., and if a level were driven from where the discovery was made, would come in 30 fathoms deep in Tamar Maria. There are also two other lodes opened upon of equal promise. There is also a very fine cross-course which has been driven on, and should be continued, as it will intersect the east and west lodes at a trifling cost; this adit will come in about 60 fms. deep; the facilities are good, and from the probability of so many lodes passing through this set, which have proved so productive, it is fair to presume some good will accrue in the prosecution of the ground, the structure of which in its geological view is more than I expected to see before I took such a minute survey, and one that is likely to prove satisfactory on further development.

J. CARPENTER.

Superintending Agent of Augusta Consols, New East Crowndale, Devon United, &c.  
Wheal Edward, April 12.—This mine is surrounded by the well-known Devon Great Consols, Bedford United, Hingston Down Consols, Wheal Arthur, &c. I find there are several east and west lodes traversing the whole length of this set. No. 2 lode is four feet wide, underlying north two feet in a fm., on which a shaft has been sunk; it is composed of gossan &c. No. 3 lode, underlying south, is three ft. wide showing a back; there is also a large cross-course running north and south, which has been driven on 16 fms. I would recommend your continuing this latter operation with all speed, as it will intersect all the east and west lodes at a depth of 60 fms., and will be a great advantage, besides giving you such backs as will pay for working; there is every facility for carriage of the ore at a cost of about 1s. per ton to Calstock Quay. The mine is situated in a good locality, and the ground very congenial for minerals; and I have no doubt you will have a lasting and profitable mine upon due development.

JOSEPH HODGE.

AUGA FRIA GOLD MINING COMPANY.—Notice is hereby given, that an EXTRAORDINARY GENERAL MEETING of the shareholders of the above company will be HELD at the London Tavern, Bishopsgate-street, on Thursday, the 30th inst., at One o'clock precisely, for the purpose of confirming the recent arrangements entered into for working the claims of the Gold Hill, and other companies, in Grass Valley; two additional directors will be elected, in accordance with the resolution passed at the last general meeting. Serpitholders who have not already registered are reminded, that to entitle them to vote at the meeting it is necessary that scrip should be exchanged for share certificates. It is requested that scrip may be sent in for that purpose to the secretary at least one week previously to the said 30th inst.  
By order, WILLIAM J. VIAN, Sec.  
Office, 3, Old Broad-street, June 9, 1853.

THE BRITISH PATENT CORK-CUTTING COMPANY.

(Provisionally registered according to Act of Parliament.)  
Capital £20,000, in 20,000 shares of £1 each, to be paid on allotment.  
DIRECTORS.  
WILLIAM LITTLE, Esq., 21, Park-square East, Regent's-park.  
WILLIAM PRINSEP, Esq., 8, Hyde-park-place West.  
WILLIAM HENRY SPEERLING, Esq., 23, Burton-street, Eaton-square.  
JAMES HAYES SADLER, Esq., Portman-square.  
INVENTOR AND MANAGING ENGINEER.—Emile du Martray.  
SOLICITORS.—Messrs. Hughes, Kearsey, and Masterman.  
BANKERS.—London and County Joint-Stock Bank.  
SECRETARY (pro tem.)—Mr. William Guichard.  
TEMPORARY OFFICE.—No. 1, KING'S ARMS YARD.

The object of this company is to work in an effective manner an extremely simple and unostentatious machine, which has been invented for cutting corks of every description, with such precision and rapidity as will enable the company readily to meet the increasing demand for this article, and for which invention a patent has been already taken out by the shareholders.

The promoters of this undertaking have entered into an agreement with the inventor and patentee for the purchase of all their interest in this patent in Great Britain, which will accordingly be conveyed to trustees on behalf of the company.

The efficacy of the machine has been tested by the promoters under the eye of the well-known machinist, Holtzapfel, and it has been found capable of producing in one hour as many perfect corks as can usually be cut by hand in a whole day, with less waste of the raw material; it is from this economy of time and labour that a very handsome return may be confidently looked for in the employment of the capital of the company.

Several practical men in the trade have seen the machine at work, and are anxious to purchase the right of using it under licenses from the holders of the patent, which may become a source of considerable advantage to the company.

The promoters have satisfied themselves, by a careful investigation of the cost of the raw material, the expenses of working, and the market prices for the produce, that a moderate capital will be sufficient to yield a profit which will be highly satisfactory to the shareholders.

The following are the arrangements made between the promoters and the patentee:—viz., the patentee and inventor are to receive 5000 paid-up shares and £1600 in cash; and after paying dividends at the rate of 15 per cent. per annum to the shareholders, the surplus profits are to be distributed as follows:—one-third to the shareholders, one-third to the patentee, one-third to the promoters.

Power will be taken in the Deed of Settlement to increase the capital, with consent of the shareholders, if found necessary, in which case the patentee will be entitled to a portion of the shares constituting such increase.

Specimens of the manufacture by this machine may be seen at the office.

FORM OF APPLICATION FOR SHARES.

To the Directors of the British Patent Cork-cutting Company.  
GENTLEMEN,—I request you will allot to me shares in the British Patent Cork-cutting Company; and I agree to accept the same, or any smaller number which may be allotted to me, and when required to sign the necessary deeds.

Name .....  
Address .....  
Profession .....  
Reference .....  
Date .....

EAST ONSLOW COPPER MINES.

In 50,000 shares.—Conducted on the "COST-BOOK PRINCIPLE."  
The East ONSLOW Mines immediately adjoin to, and work the celebrated lode of the Great ONSLOW Mines. Only a limited number of shares are for present disposal, on payment of 10s. per share.—Application for shares may be made to John T. Tidd, registrar and secretary, 9, King's Arms-yard, Moorgate-street.

WHEAL MARY ANN CONSOLS (LYDFORD, DEVON).

(Worked on the "COST-BOOK PRINCIPLE.")

This extensive set is situated in the parish of Lydford, Devon, and adjacent to the celebrated Wheal Betsy, from which a large amount of ore has been raised. This undertaking offers a fair prospect of being worked with considerable success by the application of a very small additional capital; in confirmation of which assurance, the Committee, under whose management it is conducted, beg to refer to reports upon Capt. Stephen Paull, Superintendent Mining Agent, to be seen at the Office.

Taking into consideration the well-grounded hopes expressed in these reports, as also the favourable opinion entertained by the Committee, formed from other sources of information, it was resolved at a meeting of adventurers, held at Winchester House, Old Broad-street, on the 3rd June, 1853, that an additional capital of £1000 should be raised, by the formation of 2000 new shares, at ten shillings each, to be paid for on allotment, pre-emption being given to the existing adventurers, in proportion to the respective number of the shares now held by them.

The present adventurers have expended upwards of £4000 in this promising undertaking, and it is considered that the additional £1000 now intended to be raised will amply suffice to prosecute successfully the works recommended. There are no outstanding liabilities. The machinery is new, efficient, and in excellent working order, while the monthly expenses at the Mine are comparatively trifling, a large supply of water saving the expense of steam power.

Parties wishing to see the original reports and requiring further information, are requested to apply to Mr. Robert Mariner, Winchester House, Old Broad-street, or to Mr. Jno. Butler, Shorter's-court, Throgmorton-street.

GREAT CAMBRIAN MINING AND QUARRYING COMPANY.

In 30,000 shares of £1 each.—To be paid up on allotment.  
To be conducted upon the "COST-BOOK PRINCIPLE," and the accounts audited every two months.—No Deed to be signed.

DIRECTOR.

The Hon. CHICHESTER T. SKEFFINGTON, St. John's Villas, Upper Holloway.  
SAMUEL CROSSE, Esq., Threadneedle-street, London.  
CHARLES HENRY GRAY, Esq. (firm of Gray and Co.), 71, Cornhill.  
JOSEPH WINNEY GULL, Esq., Brabant-court, Philip-lane, London.  
COL. ALEXANDER MACRAE, 1, Belgrave-road, Belgrave-square.  
ANTHONY PERRIER, Esq., Scotch-merchant, Bedford-square.  
WILLIAM EPWORTH TUCKE, Esq., 25, Great Tower-street, London.

BANKERS.—Messrs. Prescott, Grote, and Co., Threadneedle-street.  
SOLICITOR.—Osborn Jenkyns, Esq., 38, King-street, Cheapside.  
BROKER.—George Batters, Esq., 25, Throgmorton-street.  
MINING AGENT.—Peter Watson, Esq., 3, Old Broad-street.

AUDITOR.—Jenkins Jones, Esq., F.S.A., National Mercantile Office, 1, Charlotte-row, Mansion House.

OFFICES OF THE COMPANY.—28, THREADNEEDLE STREET, LONDON.

This company is formed upon the Cost-book System, for the purpose of working, upon a greatly extended scale of operations, the promising mineral properties of North Wales; the first to be undertaken will be the extensive sets of Maestryr and of Llynwun, which contain lodes of silver-lead and copper of a very rich description, and also two very valuable stone quarries. The directors have entered into an agreement for these mines and quarries on advantageous terms.

The mines and quarries are situated in the parishes of Llanelltyd and Llanaber, in the county of Merioneth; a locality of great richness in mineral deposits, and are held under a moderate royalty.  
The sets are very extensive, comprising a territory of many hundreds of acres, and the lodes extend upwards of a mile. The positions are all that could be wished for, there being every natural advantage for the most economical and expeditious working, as the navigable river Mawddach skirts the properties.

It will be seen by the reports that ten lodes have been discovered, and the principal of them opened upon. Several adit levels have been driven. Ores of good quality can be sent to market so soon as the necessary crushing and dressing machinery be completed. There are powerful and never-failing streams of water, passing through the premises, available for, and fully equal to all mining purposes, and there is suitable timber in abundance on the spot.

In this case the steam-engine and its expensive concomitants will be altogether dispensed with. It is seldom that mining adventures combining at once such richness of ores and facilities for working are placed before the public, and the directors have every confidence that the undertaking will prove, in a very short time, most lucrative to the shareholders. It must be particularly noticed that under the agreement which the directors have made with the proprietors of these properties, they have full surface rights for the effectual workings of these mines and quarries, together with the right of making roads, altering watercourses, &c., &c.

The following certificates from Professor White, and from an assay-master, upon the quality of the ore, cannot fail to give the greatest satisfaction, as showing that 1 ton of this ore is equal to 3 tons of the average richness of Cornwall and Devon:—"I have examined the specimen of ore marked No. 6. It consists of copper, blende, and lead; the former in the proportion of about 15 to 20 per cent. The specimen is very fine, and affords satisfactory indications of a good lode. Light No. 1 sample of lead ore contains 30 ozs. of silver per ton. Dark No. 2 sample of lead ore contains 25 ozs. of silver per ton. The lead will dress to the standard. It contains of silver in the ton of lead, 31 ozs. 7 dwts. 4 grs. It also contains gold, which I traced with ease by the tests."

There is now a parcel of ore at the surface, and abundance in sight, which can be dressed and sent to market immediately upon the completion of the necessary machinery.

THE QUARRIES.

These quarries are extremely valuable. The Llynwun Quarry produces building stone of a first-class character, and well adapted for making harbours, bridges, and piers, as also for street kerbing, or any other purpose that granite is applicable. The Maestryr Quarry produces a stone known in geology as green stone, or trap rock, being of a more durable nature for paving and macadamising purposes than either granite or Keshir rag. The produce of this quarry can be delivered either in London, Dublin, or Liverpool, at a price that must command a large and ready sale; and the Keshir ragstone having now become extremely scarce, is another most important point in its favour. The Maestryr is of the same character as the celebrated quarries at Penmaen Mawr, near Conway, at which place, although there are upwards of 2000 men employed, they are totally unable to supply the large demand that exists for this stone at London, Liverpool, Manchester, and elsewhere.

The stone of these quarries has been submitted to, and highly approved by, large building contractors, as also by surveyors of highways, for paving purposes; and contracts are now ready to be entered into, the directors have every confidence that from the working of the quarries alone a dividend of upwards of 30 per cent. upon the whole capital of the company will be realised within the first year, and the directors count every enquiry.

These estimates, with original reports, certificates, and plans of the properties, together with samples of the ore and stone, lie for inspection at the offices of the company, and at Mr. P. Watson's, 3, Old Broad-street.

The mines and quarries have been minutely surveyed by mining engineers, whose reports are attached.

Applications for shares, accompanied by suitable references, to be made at the offices, and to the broker, and agent of the company.

RUNNAFORD COOMBE MINING COMPANY, DEVON.

In 10,000 shares of £1 each.  
To be paid on allotment, and the remaining 10s. on or before 1st Sept., 1853.  
To be conducted on the "COST-BOOK SYSTEM."  
COMMITTEE OF MANAGEMENT.  
MR. SAMUEL PHIPPS, Clifton, Gloucestershire.  
MR. JAMES PHIPPS, Belgrave-street, Eaton-square.  
MR. THOMAS ANWYL, Denbigh-place, Finsbury.  
MR. THOMAS FISHER, Buckfastleigh, Devon.  
BANKERS.—London and County Bank.  
SUPERINTENDING ENGINEER.—Mr. Adam Murray, 76, Cornhill.  
BROKER.—Mr. William Froom, 27, Change-alley.  
SECRETARY AND SOLICITOR.—Mr. Wm. Miller, 10, Gray's-inn-place.

PROSPECTUS.

This mine is situated to the east of the Dartmoor granite, in the neighbourhood of Buckfastleigh, and about six miles from Ashburton.  
The set is held under a lease from the Earl of Maclesfield for 21 years, from the 4th August, 1849, at 1-15th dues. It is very extensive, being about two miles in the direction of the lodes, east and west; and north and south, about a mile and a half.

The mine has been worked to some extent, and a considerable sum has been expended in the erection of a water-wheel, and requisite machinery for the works, for which there is an ample supply of water throughout the year.

The tin produced from this mine, it is well known, has always realised the highest price in the market, being of the richest quality, and of which about £2000 worth has been sold.

It is estimated by Mr. Adam Murray, who inspected the mine in February last, that the lode recently worked upon will prove remunerative after an outlay of £500, but the extent of the set, the tin character of the district, and the extraordinary increase of the value of ore, renders it highly desirable that an ample capital should be obtained, that the resources of the property may be at once developed, by testing the productiveness of various portions of the set yet untried, but which present the most promising indications.

The mine was originally divided into 2018 shares, the whole of which are in the hands of the present proprietors. In consideration of the amount already expended, a free allotment of one share will be made in respect of every original share, and the remaining 5004 shares will be sold at £1 per share.

The mine is unincumbered.  
It is proposed that no call whatever shall be made; and to secure the shareholders from all liability, the works will not be resumed until two thousand shares are subscribed for.

The late Capt. John Paull, of Tavistock, who had the superintendence of the present workings until the time of his death, had a very high opinion of the mine, and his reports, with those of Mr. Adam Murray, may be seen at the secretary's office. The latter gentleman, under whose direction it is intended that the works shall be carried on, thus concludes his report, dated 10th of March last:—"In the eastern part of the set, I believe you will find a lucrative lode, with depth to warrant the erection of proper machinery when required, such as a steam-engine of 30 to 40 in. cylinder, and that you will not be subject to the balking circumstances of a lode, dipped out for a great depth. This will, of course, involve the beginning of a new mine and its necessary capital, but I believe you will find it a very quickly remunerative matter to take in hand."

Application for shares, in the usual form, may be made to the secretary, or to the broker of the company, from whom full particulars may be obtained.

PENCORSE CONSOLS, COPPER, ZINC, AND LEAD MINES.

ST. ENODER, CORNWALL.  
Held under a lease for 21 years, from Mark Bassett, Esq., at 1-16th dues.  
In 3000 shares of £1 each.—10s. per share to be paid on allotment, and two calls of 5s. each, at intervals of three months.  
To be conducted on the "COST-BOOK SYSTEM."

Committee of Management to be chosen at the first meeting of the proprietors, which meeting will be called as soon as the majority of the shares are disposed of, when the appointment of officers for carrying out the project will take place.  
OFFICERS (PRO TEM.).

BANKERS.—The Yorkshire Banking Company, Doncaster.  
MANAGING CAPTAIN AND SURVEYOR.—Capt. John Dale, St. Austell, Cornwall.  
PROMOTER AND SECRETARY.—Mr. George Henwood, Leeds.  
BROKERS.—Messrs. Henwood and Co., Telegraph-yard, Leeds.

PROSPECTUS.

These extensive and highly promising mines are situated on a gentle declivity, in a beautiful grey and blue killas, highly mineralised, and contain on the south a fine masterly east and west lode of copper and black jack (zinc), on which an engine-shaft has been sunk to the depth of 30 fms., and two other shafts to the adit level. A level has been driven 16 fms. east, and about the same distance west, from which a large quantity of copper and zinc ores were raised, and many stones of mudstone and rich lead were met with. A few fms. to the north of this lode another lode has been discovered, running parallel to it, of a similar character, on which one shaft has been sunk to the depth of 8 fms.

To the north of this lode, another copper lode, mixed with spots of lead, has been found; and still further north another copper lode has been met with; also a counter lode rich in copper, and an elvan course.

All these lodes have been cross-cut by the adit level, which has been brought up a distance of nearly 300 fms. In cutting which several lead lodes of a very rich character were discovered, but from the smallness of the veins, and except in one instance, there a pit was sunk to the depth of a few feet, and stores of rich lead ore were taken from a solid vein about five in. wide. The strata in this part of the mine change into a light argillaceous slate, traversed by quartz veins, containing small enebes of mudstone and spots of lead, and is of precisely the same character as the "country" in which the celebrated East Wheal Rose is situated; which mine is in the immediate neighbourhood, being only one and a half mile due west; and is confidently believed to be the same run of lodes as formed that prosperous mine.

The set is very extensive, being about two miles east and west, and three quarters of a mile north and south. It contains many facilities for mining operations: having excellent streams of water for dressing and cleaning the ores; and plantations of larch on the estate, from which any quantity of wood, suitable for mining purposes, may be had at a very cheap rate, thus saving the important item of carriage. Coals may be obtained, on moderate terms, from the Port of Newquay, a distance of only six miles, with good roads, where ores may be shipped.

These mines were worked in 1842, when the adit was driven up, but the parties could not afford to erect an engine; was resumed in 1849, when an engine of 30-in. cylinder was put up. This company worked only a few months, when from party differences, and the expense of holding more shares than they could pay for, the mine was abandoned just as they expected to reap the rich reward of their labours.

The best evidence of the richness of the lodes is afforded from the fact of a party of miners being now actually working over the halva or refuse, and expecting to realise a handsome sum from that source; they have also offered to take the backs of the lodes, above the adit level, on tribute, a fact that speaks more loudly in its favour than the most elaborate reports of the most talented and well-paid capitalists.

The engine-shaft is well-timbered throughout, and appears to be very perfect; the adit requires but little clearing up, having fallen in but in few places, thus saving much time and expense.

If these mines were drained by an engine of adequate power, these lodes might be operated on at once, and immediate returns made. To effect this, it is proposed to raise a company in 5000 shares, at £1 each, 10s. per share to be paid on allotment of the shares, and two calls of 5s. per share at intervals of three months each (if required); £250 to be paid down in cash, and 500 free shares of £1 each to the present proprietors for work done, purchase of the set, drawing up and executing the lease, and preliminary expenses; and the remaining capital, which will be amply sufficient to fully develop the mine, to be applied as follows, viz.:—

New 10-hp. engine and pit-work complete, and put the mine to 30 fms., with capstern and shafts, and two horse whims. . .	£1800 0 0
Other machinery, tools, and stores . . . . .	250 0 0
Capital to work the mine, bond fide . . . . .	2000 0 0
Purchase money . . . . .	1000 0 0
Total . . . . .	£5000 0 0

The above mines are held for a lease of 21 years, at 1-16th dues, from Mark Bassett, Esq., of Pencorse, and present one of the finest investments for mining purposes ever offered to the public.

Copy of a Letter from MARK BASSETT, Esq.

Pencorse, April 28, 1853.—DEAR SIR: I have not been able until to-day to see those mine captains who are in possession, and cleaning a good parcel of ores. These persons will not hinder the mine going to work, but must be remunerated for their trouble and expense; and they will have some free shares, as they think they could return several hundred pounds worth of ore at a small outlay. I think they will deal fairly; and perhaps you may have a mine agent you might choose to send on the spot to make arrangements, or any friend; or I will endeavour to do my best with them, for our mutual advantage. The ores they have sampled are far beyond their expectations. I am, &c., M. BASSETT.

Report of Capt. JOHN DALE.

May 23, 1853.—I am sorry I should have omitted sending you my report of this mine at an earlier date, pressure of work and other circumstances prevented my doing so. I have however with great care inspected these mines, and beg to observe, in the first place, that I was never more agreeably disappointed; I had for some years entertained an unfavourable opinion of the place, which notion originated from some fleeting reports, and the concern being abandoned and materials sold; however, in future I am determined in all such matters before passing sentence to go and see for myself.

The first object that struck my attention in my recent survey was a pile of rich jack, spotted with beautiful yellow copper ore, and I was struck at seeing a party at work on tribute, dressing the lode stuff from the burrows, and seeing they had cleaned a pile for the market, which is rich in its nature. The sets, which are very extensive, and situated on a gentle declivity in a blue mineralised slate stratum, embrace five known lodes, which have been cut by the adit level; the southernmost one has been worked upon by steam-power 30 fms. under adit, and is extended only 16 fms. east and west of west of adit; nothing has been done on the other lodes, under adit, so it is clear that the mine has never had a fair trial, as the adit is only a few fms. from surface. To the mine has never had a fair trial, as the adit is only a few fms. from surface. To the mine has never had a fair trial, as the adit is only a few fms. from surface. To the mine has never had a fair trial, as the adit is only a few fms. from surface.

FORM OF APPLICATION.



## Original Correspondence.

## PRACTICAL MINING—ON THE LAWS OF NATURE.

SIR,—Is it not generally admitted that miners have the best opportunities and positions for observing the curious effects of those laws of Nature which are so beautifully and wonderfully operating in the internal parts of the earth? And is it not also admitted that, with a proper amount of scientific knowledge, they are the most likely men to not only observe but to understand those laws, and turn them to the most advantageous account in mining operations? Then, in absence of that necessary amount of knowledge, would not candid statements of facts, as they present themselves in mining research, deserve an equally candid response from those who may be able to supply the desideratum?

In looking over the mines in this neighbourhood, I find that two only have been profitably productive of copper ores; while there are 12 others which have been fairly tried by steam pumping-engines, and have not been worth a farthing, and the whole of them included within an area of about 2½ miles. In the adjoining parish of St. Agnes, I believe the comparison is about the same. How is this? Is it owing to luck or chance, and in accordance with the broadest meaning of the old adage, "Where it is, it is?" or is there some other and more rational explanation to be given? Perhaps a very natural question would be—do the strata in the rich and poor mines agree in their general character? In my opinion, they do not agree; and I think that those who will pay a little attention to the matter will discover that the difference generally is strikingly perceptible. Then, if such be the case, if profitable quantities of copper ore are only found in certain peculiar strata, other questions will naturally arise—*as*, is there anything existing in the strata which causes the collection of minerals? Does there exist in the ground any particular combination of chemical elements calculated to produce such effect? Does not the fact of profitable quantities of minerals, existing only in strata peculiar to themselves, indicate that they have been produced by laws? and, if by laws, is it probable that the strata may have been the conducting medium? If not, how are the minerals and adjoining rock so generally characteristic of each other? It is not only in this locality that the above-stated difference is perceptible, but in most of the mines that I have had an opportunity of examining, both in and out of England; and I think that the same remark may be applicable to minerals in general.

June 3.

THOMAS PILL.

## MINING IN IRELAND.

SIR,—Your kindness on a former occasion induces me to think I may ask a place in your useful and talented publication again. I am led to believe that the subject of my last letter—*viz.*, the prudence of investing capital in Irish speculations, rather in any foreign ones—was not unheeded by your numerous and intelligent readers, and under that conviction I the more readily venture to trespass again upon your columns.

The portion of the county of Cork now so well-known as the West Carberry and Crookhaven mining district, has deservedly gained a distinguished place in public attention as a part of Ireland possessing all the favourable appearances of a very rich mineral locality; where the spirit of judicious enterprise can find an ample field for speculation, and discover unequivocal proofs that the speculators cannot labour in vain, if it be not their own fault. But, Sir, while this view of the subject cannot be contradicted, say more than the present highly encouraging results of nearly all mining work now in progress, there it must be obvious to every one, and most important to many, that any misrepresentations on the subject, or any injudicious puffing of mining projects, either now working or to be worked, will be surely attended with the very worst consequences, and not alone to the particular speculation so misrepresented, but every other in the district: the reasons are too obvious to require a minute detail. I, therefore, feel assured that whoever draws attention to these important facts, both as a warning and a preventive, will perform an act of public justice. To private persons, who have only their own objects in view, and who do not court public notice in any way, there is no necessity for caution, for their speculations are narrowed within a circle so limited as to cause no room for suspicion; but from all who purpose to form, or who have already formed, companies, whether on the cash-book or the cost-book system, or any other system, I think my observations deserve the most serious attention. A single failure in the face of a flashy and highly coloured advertisement of a mining speculation, whose thousand 17. shareholders may reside in the planet Jupiter, for all that can be ascertained about them, is calculated to be more prejudicial to the legitimate interests of the *bona fide* shareholder or capitalist than the actual failure in the ordinary way of 20 experiments, made as all experiments of the kind are expected to be made. There is no one conversant with mining affairs that does not well know the truth of what I state; and how can it be otherwise, when so much depends upon the statements of persons famous for the art of exaggerating my mineral appearances to which their attention is called, and for reporting on which they are generally most liberally paid.

The great mineral wealth of the extensive district to which these observations refer, is acknowledged by all who have seen the locality, and the proofs of this attractive fact are found in the number of mines now opened and progressing, some of which are of the finest appearance, and yielding copper ores of a very superior quality. While the long-known Audley Mines, in particular, promise (from their judicious management, and great extent, added to their highly satisfactory appearance) to become a source of great profit to their enterprising proprietor, and a positive blessing to the locality in which they are, from the number of the population that find employment there. Under such a combination of favourable circumstances as I have enumerated, I ask would it be wise or prudent to do anything that might give rise to a ruinous reaction, or even damp the fair and enterprising spirit that now animates so many, and most attract so many more, if there be no mistaken or selfish misrepresentations put forward.—T. J. HUNGERFORD: *Skibbereen, May 30.*

## THE DISCOVERIES OF GOLD.

SIR,—In turning over a file of Australian papers, the other day, I observed the following singular production, and prediction, on Gold. From the tenor of such an article, I cannot help thinking the author must have had some scientific motive in view, and as its re-publication in your Journal will, doubtless, lead to some interesting correspondence, I should feel obliged by your affording space for its appearance. F. G. S.

Cambridge, June 6.

## GOLD—GOLD—GOLD.

SIR,—Allow me to introduce the following extraordinary coincidental facts to the notice of unscientific thinkers, *as*, by the following reasoning the land in which gold and silver mines abound can easily be ascertained, as the above metals are always found in countries, mountains, and rivers where the final letter is *A*: where the same begins with *A*, richer deposits may be expected, and the oftener that vowel occurs in the place, the more auriferous—consequently, I cannot help remarking that the letter *A* and the word *gold* are often symbolical, *A* being the primitive article, *so* is *gold*; *A* the Alpha of all languages, *gold* the same. Gold also *sees* primordial to man, as good gold abounded in the land of *Aethiopia*, *Avila* and *Assyria*, proximate to the garden of Eden.—[Vide 2d chap. Genesis.] Primal names must be used, although I admit difficulties will occur in the selection of authorities—*as a gold mine*, by Pliny, is written *aurifodina*; *silver ditto*, *argentifodina*. Tacitus scribes *auraria* for gold, and *argentaria* for a silver-mine. Therefore, *Australasia* may be considered quadruply rich: *as Australia*, *Tasmania*, *Caledonia*, and *Polenesia* all contain this Alpha and Omega of our thoughts, as well as *Africa*, *Asia*, and *Europe*. In *America*, gold and silver is largely disseminated; in *Canada*, *Carolinian* boast of a nugget nearly 40 lbs. weight; *Alabama*, *Nova Scotia*, *Georgia*, *Virginia*, the river *Savanna*, and the great *Alpachia* mountains all richly abound in the precious ores; in *California*, on the *Sierra Nevada*, in the *Sacramento* and *Yuba* rivers. Many years ago, in the province of *Bonora*, a few labourers collected, without washing, upwards of 30,000*l.* worth of gold in a few weeks: one nugget weighed 132 ozs., and was deposited in the Royal Cabinet at Madrid.

Near Pamplona, single labourers collected 200*l.* worth a day of wash-gold; in *Paragua*, nuggets are found from two to fifty lbs. weight each. *Mexico*, *Grenada*, and *Peruvia* are also rich; *Panama* exports millions of the precious article. *Amazonia*, *Guatemala*, *Petagonia*, also abound in both metals.

The gold and silver mines of *La Plata* are very numerous (above 60 estimated), employing upwards of 6000 Indians, and realising upwards of 16,000,000 annually; the richest are those of *Luzioja* and *Carabaya*. Between *Lima* and *Tegus* in *Africa*, are the famous mines of *Huantejaya*, in a sandy plain, of such exuberance, that pure metal could be cut out;

one of these specimens of virgin silver is preserved in the Royal Cabinet of Natural History at Madrid. The mines, *Guamsuxuete* afforded from 1796 to 1803, 440,000,000*l.* in gold and silver.

From 1492 to 1803, the quantity of gold and silver extracted from S. A. equalled in value, \$5,706,700,000; the last 50 years alone produced upwards of 30,000,000*l.* sterling.

A mine in *Corthage* yielded 300,000*l.* sterling a-year; the province of *Asturia*, *Gallicia*, and *Lusitania* yielded 20,000 lbs. weight of gold annually.

*Dalmatia*, in *Europe*, according to Pliny, produced 50 lbs. daily of surface gold.

*Russia*, *Siberia*, *Kamtschatka*, *Georgia*, and the mountain of *Ouralia*, in particular, collect upwards of 2,000,000*l.* annually.

At *Norwegia*, in *Scandinavia*, very rich mines existed, from which a mass of silver, valued at 2000*l.*, was extracted and deposited in the Royal Museum at Copenhagen. *Bossnia*, in *Sclavonia*, in the district of *Srebrniza*, has rich mines of both metals—the silver in pure quartz, resembling moss. *China*, or *Tahina*, *Corea*, *Formosa*, *Mongolia*, *Malecca*, *Sumatra*, and *Java* are all metalliferous; the *Sunda Islands* are opposite to *Amazonia*, (S. A.). *Cafretria*, *Angola*, *Abessinia*, *Nubia*, *Arabia*, *Armenia*, &c., supply large quantities, of precious metals. *India*, in the province of *Agra*, *Orissa*, and *Golconda*, is famed for its mines of gold and diamonds: the king of *Ava* and *Brama* suffered no gold to be exported. *Gonena*, in *Nigritia*, is exceedingly rich in metalliferous productions.

*Monometapa* is also rich; in this state is *Sabia* and *Sofala*, the controverted land of *Ophir*, where *Solomon* is supposed to have obtained above 26 tons of gold annually.—[Vide 10th chap. book of Kings.]

Now if we try *England*, *Ireland*, and *Scotland* by the above logic, they cannot be very auriferous, as neither of them contain at the present period (or in ancient times) either a province, county, shire, river, lake, or mountain, ending with the requisite vowel, except in *Hibernia*, about *Luguita*, and *Kinchelsea* where about 1000 ozs. of gold have been gathered in alluvial soil, the largest nuggets 22 ozs.

*France*, at the present time, is similarly situated, with the exception of *Mount Jura*, that divides it from *Switzerland*; there dust has been found in the streams that pass through the *Lake of Geneva*.

The only rational logic I can give of the above singularity is, that gold is generally found in the midst of quartz, slate, clay, and sand, seldom in limestone, sulphur, ironstone, or mould.

Nevertheless, it must be admitted that *Australasia* possesses all the characteristics to be classed *A* one in the category of mineral productions. *Albert* and *Victoria*, the most powerful and prolific of *Sovereigns*, and long may they reign in the hearts of their subjects, a wise and happy people, and God grant that by no illiberal, narrow policy, may that wealthiest of all jewels—that nucleus of nations—be estranged from their escutcheons, is the sincere wish of your humble servant, G. F. GORLE.

Lawnceton, V. D. Land.

## THE SMOKE CONTROVERSY.

SIR,—When so many able and experienced combatants are carrying on a necessarily warm discussion on a hot subject, I shall not pretend to pass an opinion on the merits of their various contrivances for bringing air and coal into fiery contact: but I wish to offer a word or two on the hot air fallacy, entirely agreeing as I do with Mr. Dircks that it is a misapplication of science. I do not mean to say that where air is improperly admitted into an air furnace, which is when it does not immediately come into effective collision with combustible matter, it will not do less harm if it is hot than if it is cold, but as a means of promoting combustion, its use, and the various plans for its use, are founded on a misconception. Those who consider, and there are many such, that the great desideratum is a means for supplying atmospheric air to air furnaces at a temperature of 1000° and upwards, overlook the state of facts under which heated air has been beneficially applied. That combustion is best promoted by air in a dense state; and that cold air, as being more dense, is better than hot to urge a fire has been known time out of mind. The common smith and other workers in metals know the value of a strong or dense blast, and the wielder of the common domestic bellows is quite aware how much more easy it is to get up a fiery demonstration in the winter than in the summer without its assistance. These approved experiences were likely to have continued in force, had it not been that about twenty years ago a vast revolution was effected in the smelting of iron by the application of heated blast. People hearing of this, but without staying to understand the effects or their cause, flew to work to administer a similarly great revolution in steam-engine and other furnaces, by applying hot air to the mere combustion of coal. The little fact which they overlooked in their theory was that hot air in the smelting furnace does not promote the combustion of fuel, but directly the contrary. The advantage in a smelting furnace is to have in a given space the smallest possible combustion of fuel; the opposite object in an air furnace is to have the largest possible combustion in a given space; hot-air smoke or coal consuming is, therefore, a total fallacy, because it applies an agent which derives all its known value from its incapacity to do what the smoke consumers apply it to do. The gain from hot air in smelting is that more iron is produced with less combustion of valuable fuel; and there are two distinct elements involved in this economy. In the first place, the hot blast furnace is from top to bottom hotter than the cold blast furnace. The reason of this is, that the immense volume of air which is forced through such a furnace, being heated to 700° or upwards before it enters, *nitrogen* as well as *oxygen*, that quantity of heat is added over and above what the combustion of the fuel inside generates. So many grades of heat towards the melting temperature having been gained by an extraneous combustion, there is so much of the valuable fuel in the furnace saved, producing, besides the direct economy, certain mechanical and chemical advantages. Dense cold blast, exerting intense local combustion, tears to pieces the fuel at the tuyères, where its integral presence is most necessary, and thereby depreciates its mechanical action. The dropping metal becomes less protected by fuel at the very point where protection is essential. The destruction is so complete at the focus where the blast impinges, that a much larger proportion of fuel to materials is required to be introduced into a cold blast furnace, that there may be a surplus to generate that most important volume of heat which, passing upwards to the top, effects the essential chemical actions preliminary to the act of fusion. With hot blast, on the contrary, the oxygen being expanded, the region of greatest heat is expanded. Combustion being distributed over a far larger surface of fuel, it becomes less destructive to each individual piece of coke; the first 700° of temperature being already supplied, so much is added to the effect of the fuel, instead of being abstracted by its combustion, and, therefore, the deoxidizing gases pass upwards with all this excess of efficient temperature. There is thus an economy from the smaller quantity of fuel required to be put in the furnace, and from the smaller quantity consumed of that which is put in. It is this last which illustrates most clearly the mistake of supposing that hot air in all kinds of furnaces must be an economical agent. The value of coke, especially such parts of it as remain of an effective size at the tuyères, is from 10s. to 12*l.* 10s. per ton, and the value of the slack or culm by which the air is heated is, say from 1s. to 3s. per ton; so that there is a direct saving by the preparatory heating of the air of 3d to 5dths in the cost of the heating fuel. If we could find a fuel as much cheaper than ordinary engine coal as furnace slack is cheaper than the fuel at the tuyères, it might then be time to think of instituting new arrangements of engine furnaces without bars, to be supplied with heated air, heated and forced in by costly apparatus. But, probably, when this cheap fuel is discovered, it will be seen better to apply it direct to raising steam by heating water instead of air. When we have obtained the heat at which air enters the blast furnace, we have all that we want for generating steam; and we then leave off at the very point where the objects of the smelting furnaces begin. Those practically acquainted with hot air combustion are very unlikely to recommend the introduction of its agencies, destructive to everything except fuel, into the vital organ of the steam-engine. We have heat enough there already, and the right course of improvement will be towards its diminution, not its increase. There has been, I believe, a vast expenditure of money and talent upon the hot air fallacy, which might have been spared, had the numerous inventors who strove to imitate the smelter but stayed to consider that their respective objects lay exactly in opposite directions. The pig was smothered by the clean cloth and basket and earnest zeal of Simon to repair his trespass with the sun-heated butter, and the leg of mutton, in the next adventure, was spoiled by dragging it pig-wise along the road, a sacrifice to implicit fidelity. I should very much prefer to agree with Mr. Stevens's views of combustion. I know a friend of his, and respect his conduct to that friend, as evincing a mind not to be subdued by the shadows of authority, scorning to stifle original discoveries in the skirts of the titular or the

nominal great. We want such men. But where truth is in question, partiality is out of the question. I always regret to see talent engaged in following out a wrong principle, particularly in important matters, where there are desiderata to be gained by beginning at the right end. The value of dense air in promoting combustion is so undeniably established, that we should do better to attempt to solidify it, in contact with combustible matter, rather than volatilize it more than it is already; as is, in fact, demonstrated by the deflagration of nitre, even with the extinguishing influence of its water of crystallization. Though the last person in the world to discourage unauthorised merit, I am no radical in science, or anything else; we can only attain to permanent improvements by sticking close to the well-tried lessons of old experience.

May 28.

DAVID MUSHET.

P. S. To appreciate fully the contrast between an air furnace and a blast furnace, consider that, in the former, the fuel in combustion rests on bars of metal, which have to be kept as cold and solid as possible; in the latter, on a surface of metal which has to be kept as hot and liquid as possible; and this is one main effect of hot air smelting, that these bars and bearers are maintained in the highest degree of fluidity.

## SMOKE NUISANCE—ITS EXTERMINATION PRACTICABLE.

SIR,—Allow me to contribute another practical fact, bearing to the number of theoretic assertions that have appeared in your Journal on the same subject something like the proportion of "a grain of wheat to a bushel of chaff." After about a month's trial, I am this day informed that one of my patent smokeless furnaces, fitted for themselves by a firm of widely-established reputation as makers of marine steam-engines, besides utterly subverting the smoke nuisance in that part of their premises, enables the engine to be kept in full work eight days and a half with precisely the same quantity and description of coals previously consumed in seven days. These gentlemen do not object to the inspection of their furnace by any one introduced by myself; and they so limit their sanction, to prevent the intrusion of mere theorists.

JOHN LEE STEVENS.

King William-street, City, June 10.

## SMOKE NUISANCE—ITS EXTERMINATION PRACTICABLE.

SIR,—In my first letter I gave a general introduction to the smoke question, as regards the cause and cure of the nuisance; while my second is a running commentary on all the principal known mechanical and other aids to suppress the evil; I propose now, therefore, to close this important enquiry, by addressing you more especially on the chemistry of the subject, to the proper understanding of which we can alone confidently look for a radical remedy. Under ordinary circumstances, the charging of a steam-engine boiler or other furnace with coal, is ever a prelude to the production of large volumes of dense smoke, which gradually and lazily blend with the neighbouring atmosphere, until a fresh charge renews the same course of waste and annoyance. It is only in towns like Birmingham, Manchester, Stockport, Leeds, Bradford, Sheffield, where tall chimney shafts may be observed by scores and by fifties at a time, within a comparatively limited area of a populous district, that this wasteful and disgusting effect of the improper combustion of coal in factory furnaces can be fully appreciated. In the metropolis there are few manufactories, and of late years the introduction of anthracite coal has much reduced the smoke nuisance; but still the works of many engineers, brewers, distillers, soap-boilers, and others, and particularly the river steam-boats, seem especially privileged to emit smoke *ad libitum*.

Smoke is, properly, a term applied to the products of imperfect combustion, and is always opaque, being either brown or black, according to its density. In this, its proper sense, smoke is hot nitrogen and carbonic acid gas, combined with the vapour of water, and holding mechanically the deposited carbon of that portion of the carburated hydrogen which has been improperly or insufficiently supplied with oxygen from the atmosphere; and likewise it may even, at certain times, contain impure, dark-coloured coal gas, and the black vapour of coal tar. Smoke, then, is a term applied to what ought not to take place in a properly constructed and properly regulated furnace. It happens that we have no word but the negative one of "smokeless," expressive of what every furnace chimney ought only to breathe forth,—namely, nitrogen, carbonic acid gas, and the vapour of water—all invisible products.

I purposely avoid a more minute statement of possible admixtures in smoke, as sulphur, ammonia, silicious dust, and occasional atmospheric air, as not absolutely requisite to the present enquiry. Now the atmosphere, the coal, caloric, and the requisites for combustion—hydrogen gas and oxygen gas—all demand chemical consideration. A quarter of a century ago, furnaces were erected, and coal burnt, without taking cognizance of these things. In our day, however, every engineer who has paid the least attention to the scientific lectures delivered at our various public institutions, has a strong regard for caloric, carbon, oxygen, and hydrogen, as wonder-working elementary agents. He must often have seen his good fortune to have witnessed the oxy-hydrogen light, and the oxy-hydrogen blowpipe; the one a miniature sun, the other melting down the most refractory substances, like wax before the fire. A quarter of a century ago, scarcely for a single guinea ticket could the sight of such experiments have been obtained; whereas, in our day, we see these and more startling facts for the cost of a shilling or a sixpenny ticket. Chemistry now-a-days is popularised. Children talk chemically, because they attend chemical classes; and people born half a century past, have to listen to the marvels of chemistry their offspring detail to them. Is such an age an age to retain the smoke nuisance? Is such an age an age in which to talk with the fatuity of an alchemist of burning smoke, of consuming smoke? Smoke is simply incombustible, and when once generated during the combustion of coal, or oil, or wax, or tallow, or any other hydrocarbon, cannot be burnt or consumed; to pretend that it can, is to insist that carbonic acid, nitrogen, steam, are combustible, than which nothing can argue more decisively that he who makes such an assertion is worse than a novice in the chemistry of combustion.

What, then, have we to deal with? All chemistry demonstrates that we must burn the gas, and not attempt smoke burning. At every fresh charge of coal, the product is coal gas, every measure of which requires 10 measures of atmospheric air to furnish the two needful measures of oxygen to combine with and completely consume the carburated hydrogen gas thus due to the distillation of the coal. When the coal has disappeared, the bars remain covered with incandescent coked fuel, through which, as the air rises, it becomes decomposed, first into carbonic acid gas, which passing onward, arrives at the surface of the bed of burning coke as carbonic oxide, producing, when supplied with air, a lambent blue flame, in appearance like the flame of spirits of wine. This, then, is what takes place; and we have next to ascertain what is the best mode of supplying air to the coal gas and the carbonic oxide. Mr. C. Wye Williams conceived the happy idea of diffusion of the air admitted into the furnace for the combustion of these gaseous products. Air had previously been admitted in various ways, by split bridges, and through large openings, and hollow bars; it had been professedly admitted hot, and admitted cold, but always to disadvantage, until Mr. Williams investigated the subject, and wrote the first and only existing intelligible work on the combustion of coal on the large scale of engine furnaces. He lays no claim to the discovery of any single chemical fact; but the facts he has adduced, discussed, and applied in his treatise, were previously as much a *terra incognita* to engineers and manufacturers as America was to the civilized world before Columbus crossed the ocean. Now, the wonder is that it should have been left for Mr. Williams to apply, within the last 15 years, unsupplied laboratory facts to a practical, yea, to a public and great national purpose. He has struck the egg on the table, and now forsooth, every smoke-burning furnace patentee discovers that he can do all that Mr. Williams has effected, but, as he blindly imagines, by far happier means.

Perhaps the most insidious and pernicious, because the most plausible, fallacy is the pretence to the use of hot air, or even the attempt to use hot air at all. Air is such a well-known bad conductor, that it can only be made excessively hot by very complete arrangements; as by compressing it through a long length of red-hot coiled pipe; whereas, if left to ordinary pressure, passed over a short hot surface, and in a large body, it will receive comparatively little heat indeed. We have seen that 1 measure of coal gas requires 10 measures of air, containing 2 measures of oxygen. Now, for argument, we will suppose the air made only hot enough to double its bulk. What, then, will be the result? It is evident that every cubic foot of such hot air contains only 1 measure of oxygen instead of 2 measures; but this is not the worst part; the expansion of the whole has expanded likewise every atom, and each atom of oxygen stands wider apart, and is thereby, under circumstances, highly unfavourable to its rapid union with the atoms of the carbon and the hydrogen











spots of rich yellow copper and lead—a large and hard kindly lode, but owing to the formation of the hill we have not very much cover at present. I am happy to state that we are getting on well with the engine, and we hope to get it to work on the 15th inst. All other work we are fast progressing with. I am glad to say, on reviewing the whole, that the mine is looking very kindly; we shall now soon be in a position to sink the engine-shaft with all dispatch, and open out fresh ground by driving our levels east and west; and as we sink I expect to lose the gossan, which has hitherto followed us down to our present deepest level, and consequently the ground will become more settled, and the lode more solid and productive, and likely to work at a steady profit.

**CLONAKILLY SILVER-LEAD (CORKY CORN).**—The medium breadth of the chief lode now driving is about 4 ft. wide, from which, within the last two months, about 8 tons of ore have been raised by two miners, worth 15s. per ton. The old levels are clearing, and in another month the mines are expected to be opened to a development that will enable us to report on their true capabilities. A winze has been sunk under the level about 4 fms., and a driving on the lode at this depth commenced, which is producing ore, worth 10s. per fm. Mr. St. Pierre Foley, our inspecting engineer, visited us last week, and has given us directions to have all the old workings cleared out, if possible, against his next visit, for further examination; at present we are raising ore to pay double our expenses. The parallel lodes, east and west of the Doneen lode, on which we are working, show lead ore to low water level; these are yet untried, but we propose to cross-cut from our winze in order to prove them at some depth under low sea level, when we anticipate, from the indications now offering, and the proved mineral nature of the Doneen lode, that we shall find these lodes equally productive. Our trials on the Mucross Mines are proceeding vigorously, and with hopeful expectations of success.

**CUBERT UNITED.**—The lode in the engine-shaft at present is large, consisting chiefly of a kindly quartz, with a portion of lead, accompanied with favourable ground, and, on the whole, promising. The 45 fm. level west is still in eluvium, and the lode poor at present in this level to the east the lode contains a portion of lead, and the appearance is improved since last week. The lode has not yet been attained by the cross-cut in the 35 fm. level east; but in this level to the west the lode is much improved, and is at present worth 20s. per fm. The lode in the 25 fathom level west is also improved, and is now yielding some good bunches of lead; and the general appearance is promising in this level to the east. The ground has become more favourable for driving, and the lode is kindly; and, from present indications, a greater improvement may be expected here before long. The lode in the 15 fm. level east is producing some good work at present, and looking altogether promising. The general appearance of the lode is improved since last week; and on reaching the west side of the eluvium in the 45 fm. level, it is looked forward to with expectations of seeing a still further improvement. There are now about 11 tons of lead in and upon the mine, dressed and undressed. At Trebellan, we are clearing the engine-shaft below the 35 fm. level, where we find it completely filled with rubbish, and much out of repair. Some men are also employed in clearing a trade shaft, about 40 fms. to the west, which we find necessary for ventilation.

**DEVON AND COURTNEY.**—The lode in the 80 fm. level driving east is about 2½ ft. wide, yielding some very good stones of ore. The lode in the 70 fm. level is much the same as last week. The lode in the 50 fm. level driving east is about 1½ ft. wide, composed of munda, spar, and some very good stones of ore.

**DEVON CONSOLS NORTH.**—The ground has improved for sinking, and the kills are the finest I have yet seen, being impregnated with munda and spots of copper. We are now in a clear channel of mineralised killas.

**DEVON CONSOLS WEST.**—The ground in the cross-cut, south from Peet's engine-shaft, is of a light blue slate killas, and presents an improved appearance, and all the branches therein are composed of munda, spar, black jack, and cubes of lead ore; if we continue for the future to intersect branches of such splendid character, there is every probability of these branches, when falling in with the gossan lode, to make large deposits of ore.

**DEVON UNITED.**—We are still deprived of surface water to continue the sinking of the engine-shaft, it is now 10 fms. 5 ft. below the 40 fm. level, the lode is 4 ft. wide, and has a promising appearance, as it has some 12 fms. both north and south of the shaft in the 40 fm. level; therefore I anticipate meeting with something good in the next drive. I should recommend, when the shaft is in the 52 fm. level, as contracted for, that every opportunity to effect this object should be taken, as the present price, in the interim, I think it advisable to drive the 40 south on the lode, it will be a guide, as well as proving the properties of the lode under the summit of the hill, as also to prove the copper lode, as noticed in last report.

**DEVON WEST BEAM.**—The new drive adit is driven about 19 fms., leaving about 6 or 7 fms. further to drive; the ground is favourable, the present price for driving being 2s. 2d. per fm. The ground in the 40 fm. level, driving north of the engine-shaft, to intersect the north tin lodes, is a little softer; the present price is 5s. 10s. per fm.; the lode in the 40 fm. level west, on Brooks's lode, is just as when last reported on, about 1 ft. 3 in. wide, producing a little tin, and looking very promising; the present price is 6s. per fm. The ground in the 30 fm. level, driving north of the engine-shaft, to intersect the north tin lodes, is a little softer; the present price is 5s. 10s. per fm. for driving being 5s. 15s. per fm. The lode in the bottom of the 30 west, on Brooks's lode, is not looking so well; we have, consequently, suspended it, and put the men to rise in the back of the 30. We shall commence at the end of this week to clear the western whim-shaft from the 10 to the 20 fm. level, in order to sink this shaft from the 20 to the 30 fm. level, and drive the 30 fm. level, the 10 fm. level, and the adit level west, on Brooks's lode, to meet it. We are daily expecting the castings for the stamps, and hope to commence stamping some part of next week.

**DINAS GREAT COPPER.**—In the No. 1 level there has been nothing done since the let of April, as No. 2 level will prove all the ground, and at a greater depth, which is driven 4 fms. to the main lode, on which a shaft is sinking, and now is about 4 fms. deep; in this level a cross-cut will have to be driven about 15 fathoms north into the mountain, 6 fms. of which have been done already, where it will intersect another lode at about 12 fms. deep, which has a very promising appearance at the surface. No. 3 level has to be driven 20 fms. to cut the main lode, 8 fms. of which is done, and is 9 fms. below No. 2, where, with the shaft before-mentioned, will form a connection, and all ore raised in the above level will be put down, and carried on to the floor by tramway. This part of the work, to say the least, will take 10 weeks to do, and I believe from its present appearance will lay open some good ore ground, as the stratum is strongly mineralised, and we have good stones of ore in sinking. The western level will have to be driven 25 fms., 3½ fms. of which are already done, where it will intersect the lode that crosses from the Cachelv Mine. I beg to draw your particular attention to some new discoveries made by the men, one of which is near the smith's shop, containing spar, peach, sulphur, and copper, with large fissures, and beautiful gossan. On the 3d inst. the ground was cleared sufficiently to have a blast on the lode, from which I had one solid block of sulphur and copper, about 7 cwt., specimens of which I sent to you per rail. There is also at the top of the creek a very fine vein, which, from its appearance, I believe will make lead; it is a tough light blue clay, with a vein of black about 3 in. thick, also sulphur and lead in it.

**DUNSLY WHEAL PHOENIX.**—We have commenced opening on the branch or lode cut in the eastern adit, and are breaking some good stones of tin. We are making every exertion to clear up the old workings under the adit, but have not yet been able to reach the bottom.

**EAST CROWDALE.**—The ground at the engine-shaft has improved for sinking since my last report, and therefore, on the whole, is more satisfactory. Other parts of the mine are progressing, but there is no new feature calling for remark. Our carpenters are now engaged making the new foundation for the wheel, but nothing has, as yet, arrived from the foundry to enable us to get on with the crusher, though I believe they have commenced setting those things.

**EAST POLGOOTH.**—In resuming progress, I beg to inform you that our new shaft is very nearly complete to the 30 fm. level; on the main lode, both the 30 and 20 fm. levels, going west, look extremely well, but the 30, going east, is at present small. The erections at the surface are in a forward state; the large engine-house has been ready for the reception of the engine for some time, but I am sorry to say, that no part of the engine has yet been sent; the stamps engine is nearly completed. We have no doubt of being able to keep the stamps constantly supplied with tin-stuff from our reserves in the back of the 30 and 20, until we sink to open ground at the deeper levels.

**EAST WHEAL ARTHUR.**—We have continued to sink the engine-shaft since my last report; the lode has still a very kindly appearance, being full 2½ ft. wide, containing gossan, peach, munda, and copper ore. We have also continued driving the adit level east towards the engine-shaft, here the lode is 3 ft. wide, and contains some good dredge work. We are getting on favourably with our wheel and wheel-pit.

**EAST WHEAL GEORGE.**—The ground at the engine-shaft, sinking below the 32 fm. level is as last reported on. The lode in the 32 west is at present small and unproductive; the lode in this level east is very large, composed principally of quartz with munda, and at times stones of ore. We commenced sinking a winze in the bottom of the 23, but were obliged to suspend it in consequence of the water being so high, consequently have put the men to rise in the back of the 32 below; the lode here is 3 ft. wide, carrying a branch of ore on the north wall 6 in. wide, with occasional good stones of ore throughout the lode, this being west of the shaft. The lode in the back of the 12, east of shaft, is producing moderate work. The tributaries are earning fair wages.

**EAST WHEAL RUSSELL.**—Hitchins's shaft is down as deep as we shall go for the 20 fm. plunger-lift; the lode in the bottom of the shaft is just the same, composed of gossan, spar, prisms, and coats of copper ore. We shall fix our plunger-lift as soon as possible we can, and commence driving a cross-cut through the lode south, where I hope we shall see something more encouraging. The 55, driving east, is just the same, producing stones of ore occasionally. The end driving west, in the same level, is composed of gossan, spar, capels, and spots of grey ore. The 45 fm. level, driving east towards the cross-course and Tunnel end, is composed of gossan, spar, capels, and stones of ore. The cross-cut, driving north in the same level, is still in killas and branches of spar, with water coming from the present end very strong. We have not taken down any of the lode in the Tunnel level end since last reported. The men have been driving the lode, which they will resume to take down this morning (June 9) if all is well, so as to inform you of its appearance at the quarterly meeting. The lode in the back of the level are not looking so well as on my last.

**EAST WHITE GRIT.**—Lawrence's shaft still continues in hard ground. The ore continues in the 20 fm. level, with the same promising appearance.

**FAT-WORK AND WHEAL VIRTUE.**—Since my last we have completed our pit-work, &c. The shaftmen are now engaged in cutting pit and driving a cross-cut on our 10 fm. level, which we hope to have completed in the course of a week or ten days, so as to enable them to resume sinking. Our stopes are yielding some good tin stuff. They have intersected a branch in our south end producing some good spots of tin, but I do not think it is the main lode. We have also intersected a lode in our western cross-cut, which at present is not very rich; there appears to be something further west, as there is a large stream of water forcing away from the breast of the same. The lode at present is yielding some good tin stuff. We have also opened on the back of the Mary Pashy lode (so termed here), which at present yields tin-stuff worth 2s. 6d. of tin per 100 lbs., and judging from the work done by the old workers at this point, it is evident they must have taken away large quantities of tin. Our engine is working exceedingly well. We hope in the early part of next week to begin stamping some tin stuff. We are this day driving to form a stamps' bed, &c.

**GABRIS.**—The lode in the 20 fm. level, driving north, is 5 ft. wide, producing a little lead in the same level, driving south, is from 9 to 10 ft. wide, with occasional stones of lead. The lode in the 10 fm. level, driving south, is also very rich, but unproductive of any lead. Now the dry season has set in, and the greater part of the lode, we are about to clear up some of the old shafts on the east side of the lode, and, if success, if any, in doing so, shall be communicated immediately.

**GRAYTON UNITED.**—At Fuller's engine-shaft we have an improvement; the north part of the lode, which we are sinking by within the last three days, presents appearance of the most promising description. In both ends of the shaft there are two large

vughs, which contain beautiful gossan, spar, and munda, thickly coated with black and spots of yellow ore. I am quite certain a prettier looking lode has not been seen for some time past in the district; its size I cannot say; some time next week, however, it shall be cut through, and the result you shall be informed of. We are now entirely waiting on the founders for the remainder of the castings, and if we do not get them to-day (June 9), as promised, shall not be enabled to start the engine on Saturday, as expected; I hope, however, this will not be the case, as it will be a great disappointment. The blacksmiths and carpenters' shops and office will be finished on Saturday night, and we shall immediately put up a small pump-house and powder-house.

**GEIFRONT.**—The lode in the 20 fathom level west is 18 in. wide, composed of spar, capel, and stones of ore; in this level east and the 10 they have not taken down any lode since last report. The 15 is without alteration. We have not taken down any lode in the stopes this week. Our tribute department is without alteration. I have set a pitch in the back of the deep adit at 10s. in 11, to two men this week.

**GLENANLIN AND CARVILLEEN.**—Extracts from Capt. Jno. Thomas's report, dated 28th May, 1853:—"I have much pleasure in informing you that since my last report the mine has greatly improved; the shallow adit, east on Tennent's lode, is worth 30s. per fm.—there is every prospect of this lode being a very rich one. The pit is increasing in size, and I expect by the latter end of June we shall have a respectable cargo, but we are quite ready to ship whenever the directors think proper to do so. I will send you in a few days plans and sections of the mines."

**GOLLEN.**—These mines are developing most favourably, and give every promise of making yellow copper ore in a few fathoms. On the whole, they, untried, as it were, till now, and proved by strict dialling to be in continuation of the very same lodes, now so rich in produce, as the Ballydehob or South Cork lodes—may be assuredly relied on to make very productive returns when opened to similar depths as those of the neighbouring mines, now working so effectively.

**GREAT BRYN CONSOLS.**—The Great Bryn shaft has been sunk 26 fms. from surface, 7 ft. by 6 ft. within the timber, and I expect to meet the lode 26 fms. deep, which will suit the pitwork already on the mine. The shallow adit is driving south by two men and one boy, at 30s. per fathom, and 8s. per fathom for drawing the stuff. The south lode is driving east by two men, not yet let, in consequence of securing the ground, fixing footings, &c.; it is 2 ft. wide, and very promising to make large quantities of copper in depth, which you will see from the samples sent. We are continuing at surface, and doing other necessary work on the mine. I can get any quantity of miners or labourers, but have not been able to get a pair of sawyers and a carpenter for a few days.

**June 8.**—Our prospects for the last week have been very promising. The Great Bryn shaft is sunk 16 fms. from surface, 7 ft. by 6 ft. within the timber; I expect to cut the lode 16 fms. deep, which will suit the pitwork already on the mine. I am happy to inform you we have cut in the Great Bryn shaft a lode composed of a beautiful prisms, spar, munda, and some good stones of copper ore of a rich quality, and very promising to make large quantities of copper in depth. The shallow adit, driving south, has not yet cut the lode; ground not so hard for driving, I think we are near the eluvium course. The south lode, driving east of shaft, is 2 ft. wide, composed of munda, spar, and some good stones of copper ore. We are continuing at surface, and doing other necessary work on the mine.

**GREAT CHINNIS.**—The engine works well; indeed, the water is drained 6 fms. below the adit level; we shall now begin clearing and securing the various shafts. A few more will put us in a position to sell ore, and when the winding and crushing engine is completed we shall be furnished with a good stock of machinery, calculated to carry out the mine to a great extent.

**June 7.**—The engine is working in first-rate style. We dropped a new pump on Tuesday, and expect to drop another during the week. I have put a party to clear Catharine's, Charles's, and the old engine-shafts below adit. We are putting up horse-works on the various shafts, to discharge the stuff while clearing the shallow levels. When this is done we shall set tributaries to work, who will want to use the crusher as soon as it can possibly be got ready. Everything is going on comfortably, yet, a little time is required to clear up the old workings, which in many places are crushed close as the ground itself. I feel that I am employed under men who know something about work, and that mining especially cannot be conformed to in being.

**GREAT HEWAS UNITED.**—When we commenced operations here we found the shafts and adit level in a very decayed state, in many places the timber had given way, and the shafts nearly full to surface. We have succeeded in securing the engine-shaft 24 fms., Warr's shaft 18 fms., Poole's shaft 18 fms., Trethewey's shaft 16 fms., and repaired some other shafts to the adit level; we have also cleared and secured more than 100 fms. of adit. Our surface buildings are put in complete order—viz., smithy, carpentry, and saw-houses, also the account-house; the old loading or unloading bed has been taken out of the engine-house, and a new one built with granite. The engines are on the point of erecting the engine, which I calculate will be at work about the end of July. We are now preparing stone for building the stamps and winding engine-houses; the engineers will be here next week to fix their positions. Several hands are employed about sundry surface work; in fact, very active operations are being carried on throughout the mine.

**GREAT TREGUNNONS.**—We are now stopping in the floor of the adit, and are breaking good stones of tin—all the tin we are obtaining is of very rich quality. We have cut another tin lode between Hobler's shaft and the water-wheel; it is from 12 to 14 in. wide.

**GREAT WHEAL BADDEN.**—The lode in the 50 east is 6 in. wide, composed principally of munda. The lode in the 40 is 1 ft. wide, with a little lead. The lode in the 30 is 1½ ft. wide, turning out good work for lead. We expect to communicate the new shaft to the rise above the 30 in a day or two. We sampled, on Saturday last, 25 tons of lead ore; and shall have ready for the smelting-house by Saturday next 15 tons, 1½ to 2 tons of black tin.

**HAWKMOOR.**—In the 30 fm. level east there is but little alteration since last report. In this level, west of Graham's shaft, the lode is very large, a strong looking lode, composed of spar, peach, and some good spots of copper. The lode in the back of the 20 fm. level is looking well, and I hope to have the lode taken down this week. In the 20 fm. level west of Graham's shaft the lode is 3 ft. wide, producing some saving work. The winze in the bottom of the 10 fm. level is in favourable ground for sinking. We have about 3 fms. to hole to the back of the 20 fm. level, when it will give ventilation to the eastern part of the mine, and enable us to drive the 30 east a great many fathoms, where the air is now bad. Graham's shaftmen are working well, and we are giving every exertion to hasten on the work as fast as possible. We sampled, on Friday last, 21 tons of ore, worth about 5s. per ton, and shall commence dressing again next week.

**HERODSFOT.**—In the 150 fm. level, south of the engine-shaft, the men are engaged in driving through the capels of the lode, which are very strong and hard, but will be expected lead to a good discovery. In the south end in the 137 fm. level the lode is worth 9 cwt. of ore per fathom; but it is hard and expensive for driving on. There is one stop in the back of this level worth 5 cwt. of ore per fm. We are also carrying a rise to the 127 by the side of the lode in easy ground. In the 127 fathom level north the lode is worth 4 cwt. of ore per fm., and is moderately easy for driving. There are two stopes in the back of this level, each worth 5½ cwt. of ore per fm. In the south end in the 127 fathom level the men are driving by the side of the lode, and are breaking good stones of tin—all the tin we are obtaining is of very rich quality. No. 1 stop is worth 12 cwt.; No. 2, 8 cwt.; No. 3, 5 cwt.; and No. 4, 10 cwt. of ore per fm. In the 117 fm. level the engine-shaft, for the present, engaged in sinking a winze. We have three stopes working in the back of this level, each worth 8 cwt. of ore per fm. The 106 fathom level is being driven by the side of the lode. There are three stopes in the back of this level—No. 1 is worth 10 cwt.; No. 2, 10 cwt.; and No. 3, 12 cwt. of ore per fm. In the 94 fm. level we are sinking a winze, and carrying the same by the side of the lode; there are two stopes in the back of this level, each worth 10 cwt. of ore per fm. In the 82 fm. level we continue to drive on the lode, and have no doubt but will lead the lode to the surface. The mine, on the whole, is looking quite as well as for some time past, and I may say somewhat better as regards the stopes. The returns from the stamps are, however, reduced, owing to the decrease of water, so that we sampled only 60 tons of ore on Saturday last; and I am afraid we shall not be able to do more during the summer.

**HILL BRIDGE CONSOLS.**—The lode in Barclay's shaft is looking very promising, we have little short here of a course of ore. The north copper lode still continues large and regular, and of a very favourable character. We shall also, I hope, soon clear the old workings by aid of the flap-jack.

**HINGTON DOWN CONSOLS.**—Morris's shaft is sunk to a depth of 10 fms. below the 55; the pitwork is fixed, and hope to intersect the lode by a cross-cut in the course of another week. The pitwork also in Hitchins's shaft is made good in the 55, and all is in good working condition. The prospects, generally speaking, throughout the mine, continue cheering.

**HOLMBUSH.**—The ground in Hitchins's engine-shaft is without alteration—down 4 fms. below the 145. The ground in the 145 cross-cut, south of the shaft, is much the same. The ground in the diagonal shaft is moderate, and down 12 fms. below the 145; no branches have been discovered in the 145 (west) of the great cross-course, since last reported on; the cross-cut will be under the perpendicular of the lode, as seen in the 132, in one week more, and if no other branch is met with, we shall begin to drive west on the branches already discovered. The ground in the 120, west of the flap-jack lode, through the cross-course, is hard at present, having met with a floor of hard spar. The flap-jack lode in the 120, east of the cross-course, is 2 ft. wide, producing 2 tons of ore per fathom. The lode in the 110 east is 6 ft. wide, producing 4 tons of ore per fathom. The lode in the end west of Midway winze is 5½ ft. wide, producing 3 tons of ore per fathom; there are about 7 fms. more to explore to make a communication to each end. The ground in the 124 fm. level cross-cut, south of Wall's engine-shaft, is troublesome, in consequence of so much water issuing from the end. The ground in the 124, north of the same shaft, is much the same; the branch discovered in this level dips south 6 in. in a fathom, composed of munda, spar, and yellow copper ore. There is still water spouting from the end, which we shall continue to drive.

**HOPE VALLEY.**—The lode in the 35 fm. level, driving south, is about 2 ft. wide, composed of hard capel and spar, carrying a leader on the footwall which varies in size from 3 to 5 inches, rich work for lead ore, yielding of the latter about 1 ton per fm. The ground in the 25 fm. level, driving south, is somewhat easier for driving, but not yet clear of the eluvium, consequently no improvement can take place until this channel of ground is got through; we are in daily expectation to gain this point, as the water is strongly issuing from the breast. The water in the old workings is gradually sinking about 6 in. in 24 hours, being now down about 6 fms. below the adit level, where it is about halfway down one of the old levels, and it appears to be in the longest part of the former workings, which accounts for the water being drained so slowly; should it continue to sink as it now does, this level will be dry by the end of this week, which will enable us to examine the workings made therein; and we are informed that tribute pitches can be set as soon as clear. Applications have been made this morning for a pitch there, but this, of course, was refused until the workings can be inspected. One of the men has just brought up some fine lumps of lead ore from the 35 fm. level, and informs us that the lode is looking very promising; and I have promised the men, if they will break and bring to surface by Saturday next 1 ton of lead ore, they shall have 1s. premium, and they calculate on performing the task.

**IVY TOR CONSOLS.**—Our operations are progressing very favourably. There are branches of munda, containing spots of yellow ore. There is a large promising lode in the winze; I think there is nothing wanting but perseverance to make it a deep and lasting mine, as I am expecting a change for the better every fathom we sink.

**KESWICK.**—At the Brandy Mine, the 20 fm. level north is worth 12 cwt. of ore per fm. The 30 fm. level north is worth 3 cwt.; No. 1 stop, in this level, 12 cwt.; and No. 2, 15 cwt. of ore per fathom. Two stopes in the 30 south are worth—No. 1, 12 cwt.; and No. 2, 8 cwt. of ore per fathom. Wilkinson's level, in the Barrow Mine, is worth 12 cwt. of ore per fathom.

**KIRKCOEDBRIGHTSHIRE.**—The lode in the 110 east, east and west, are much as last reported. The lode in the 98 east has made a stone of ore on the south side this week. The lode in the rise over the 86 west, and in the winze sinking on it, is producing a little ore.

**LOVEDEN UNITED.**—The lode in the engine-shaft, sinking under the adit level, is still large, with a mixture of ore throughout. The lode in the present end, driving east of shaft, is 4 ft. wide, with several small branches of lead ore; the stopes in the back of this level are much as usual, yielding from 15 to 20 cwt. of lead per fm. All other operations are progressing satisfactorily.

**LYDFORD CONSOLS.**—The lode in the 50, north of the engine-shaft, is large, and composed of flookan, quartz, and occasional good stones of lead ore—a kindly lode. In the 36, north of the engine-shaft, the lode is 3½ ft. wide, composed of flookan, quartz, and lead ore, some of which is saving work. The 36, south end, is without material alteration. Our machinery works well, and the dressing department is proceeding as fast as circumstances will permit.—Wheal Mary: In the western adit level the lode is of good size, full 4 ft. wide, composed of flookan, quartz, and spots of lead, and is altogether of a most promising character.

**MELLIN.**—The lode in the engine-shaft, sinking below the 46, is 1 ft. wide, unproductive; the lode in the 40 west (re-commenced driving) is 1 ft. wide, with a small branch of lead, worth 6s. per fm., improving in appearance; the lode in the 40, driving east, 1½ ft. wide, with good stones of lead. The lode in the 20, west of the old shaft, is from 3 to 4 feet wide, producing stones of lead, and about 1 ton of calcimine per fm. The lode in the 16, west of this shaft, is about 4 ft. wide, composed of carbonate of lime, shale, and calcimine, worth about 4s. per fm. for lead—a fine looking lode. We have sampled to-day about 4 tons, to be sold on Thursday next.

**MICHELL.**—This mine is unwatered; but we find the levels broken down and full of stuff, which we have commenced clearing. We hope to see some part of the lode in a day or two.

**MIXON GREAT CONSOLS.**—Our surface operations are going on satisfactorily, the levelling of the ground for erections, yards, &c., is nearly completed, and all hands are employed in making roads for the carriage of stone from the quarry to the buildings, and for the conveyance of the machinery and other materials. The timber-house walls will be up by the end of this week, and we shall commence the smith's shop immediately. The foundation of the engine-house is taken quarry within a short distance of the buildings, and all down-hill carriage. We are still clearing the adit level north of Smithy shaft, and have opened on the caunter lode, which has a very promising appearance: it is about 5 ft. wide, with well-defined walls, and is composed of floor-spar, prisms, shale, carbonate of lime, munda, and copper, with some traces of lead: the copper is interspersed throughout the whole size of the lode in small strings, or branches, and the whole of the lode is good saving work. One thing is worthy of notice, that this lode is making to the south of the lum, or flookan, and stands in the whole ground from the bottom of the mine to the surface. Our engine at the High Rake Mine is nearly taken down, and will be finished by the end of the week, and we are about engaging waggons and horses for the removal of the same; we hope to commence the cutting down and clearing up of the engine-shaft next week, and the week following to begin the building of the engine-house. The whole of the works are going on quite to our satisfaction, and the appearance underground is far beyond my expectation.

**MOLLAND.**—The lode in the engine-shaft sinking below the 52 is much as last reported. The men are now engaged cutting a cistern flat. The lode in the 52 east is still very large, producing saving work. The lode in the 42 west is 3 ft. wide, producing stones of ore; in the same level east some lode is 4 ft. wide, producing good stones of ore. The lode in the winze sinking below this level is 2 ft. wide, producing good saving work. The stopes in the back of this level are worth 9s. per fm. The lode in the 30 west is 3 ft. wide, with spots of ore. The lode in the adit in the eastern hill is 2 ft. wide, and although it is not producing so much ore as it was last week, yet it is still a kindly lode, and produces good stones of ore, the ground very favourable for exploring.

**MOSTYN.**—The lode in the 35 adit level, driving west from Jones's cross-cut, is worth about 6s. per fm. for lead. A pitch has been set in the back of the 45 adit level at 10s. in 17. The back of the 35 will set at a much lower tribute as soon as the level is sufficiently driven that it can be worked without hindrance. The lode is not yet cut in the cross-cut from Crookford's shaft.

**NORBURY.**—The new engine-shaft is down 2½ fms. in favourable ground.

**NORTH DOWNS.**—The lode in the 100 is 2 ft. wide, and although it does not contain much ore it wears a promising appearance, and the water issuing from the end is 15' higher than it is in any other part of the mine. The lode in the winze sinking below the 90, and about 5½ fms. beyond the 100, is 3 ft. wide, and will produce 5 tons of ore per fm.; the water, however, is very powerful for manual labour, and I fear that but very little more can be done until the 100 becomes in a line with this shaft of ore to rise to effect a communication; this can be done in a short time, but it is more than probable that, when the end reaches the point where the course of ore is gone down, the 90 will become drained, and then the sinking may be resumed; the lode in the 90 end is 1 ft. wide, consisting mostly of quartz and a little copper ore, worth about 3s. per fm.

**NORTH FRANCES.**—We have rather harder ground in the shaft. The lode which came in from the north is still in the shaft; I do not know its size, as the shaft is going down wholly in the lode, 7 ft. wide, without either wall being in sight. There is some gossan in the lode, with spots of black and yellow ore; on the whole, it looks kindly, and will probably be productive in depth. There is hardly any water in the shaft, not more than two or three barrels in 24 hours. The cross-cut south from old South Dolcoath is somewhat easier for driving. We have discontinued the work upon the larger lode, south of the engine-shaft, having opened up it near the surface enough to satisfy us as to its size and promising appearance, and must wait till we see it again by cross-cutting in depth from the shaft.

**NORTH WHEAL TRELAWNY (QUINTRELL).**—Corton's engine-shaft is sunk 14 fms. under the surface, and divided and cased to that depth. The horse which is also erected, and is in readiness for drawing. The lode in the adit level south is 2½ ft. wide, producing 4 cwt. of lead per fathom.

**ORSEDD.**—The lode in the 20 fm. level, driving east from engine-shaft, is about 3 ft. wide, with a little lead. We have suspended the 10 fm. level east, and are sinking the eastern shaft, to get on with the surface work. We have taken out the foundation of the engine-house, &c., and shall commence building to-morrow. The building of the engine-house, boiler-house, raising, and carriage of stone, the builders to provide lime, sand, &c., has been let by tender, at the aggregate of 4s. 2d. per cubic yard. I hope to get the house prepared to receive the engine in six weeks from the present time.

**PENCORSE CONSOLS.**—We have this week had Mr. Henwood and a shareholder here inspecting the mine, and preparing for the engine and floors. We have two men raising ore from the backs; they have broken about 40 barrels of middling work for copper, and some rich stones of lead. We have now about 6 tons of ore ready for market, and four hands dressing more. We intend to set on more, to raise and dress copper, so that in a few weeks we shall be in full operation.

**PEN-Y-GELLI.**—The engine-shaft is sunk about 8 fms. below the 10 fm. level. We hope by the end of this month we shall have sunk deep enough for the 20 fathom level, when we shall drive to intersect the lode. The lode in the 10 fm. level, driving east, is about 1 ft. wide, with a little lead; the lode in the winze sinking below the adit level, on the above end, is from 5 to 6 ft. wide—saving work. The lode in the 10 fm. level, driving west, is 3 ft. wide, unproductive. The end is at present in the shale, but, knowing that the lode exists but a short distance west, we shall soon get through it, when we may expect a change in the lode. The lode in the adit level, driving west, is about 2 ft. wide, with a little lead; this end is also in the shale. We have commenced a new shaft about 20 fms. west of this end, which is clear of the shale. We intend only sinking the shaft 10 fms. until the lode is intersected in that level, as the lode at this point has been profitably worked from the surface to 6 or 7 fms. deep, below which depth no more could be done, on account of water. Our western levels have just drained this ground. I expect five or six weeks will accomplish this.

**PERRAN WHEAL JANE.**—No alteration since last report worth noting. The strata continue very congenial for minerals, and several branches of ore are passing through the shaft.

**PERRAN WHEAL ALFRED.**—This mine is very much improved in depth—the lode is well-defined, and composed of beautiful prisms, lead, and copper.

**PRIGNANT CONSOLS.**—The engine-shaft is sunk 5 fms. below the surface; the lode is from 4 to 6 ft. wide; there is now a good deal of soft spar in the lode, and it has altogether a promising appearance. The adit level has not yet intersected the lode.

**POSTERWYD.**—The new engine-shaft, which is about 200 yds. east of western shaft, is now sunk about 3 fms. below the surface; it is set to sink, at 7½ ft. per fm. The shallow adit level, driving west of the eastern side of the hill, is 10 ft. wide, with a very promising appearance, containing a little ore; this end is let at 4s. 10s. per fm. We have also resumed the sinking of the western engine-shaft by nine men, at 14s. per fm. The weather now being very dry, and the underground water much less than it has been, the 32-ft. water-wheel is progressing favourably. The men are all in their places, and the iron segments are in course of putting up; the mill is working early and late about it, in order to get it completed as quickly as possible. I hope to be able to send you the plans and sections of the mine in time for the next quarterly meeting if possible; I have got them partially made out, and will lose no time in completing them.

**PRINCE ALBERT CONSOLS.**—This mine has very much improved during



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### Notices to Correspondents.

**BRITISH MINING COMPANY.**—Sir: I should feel obliged, if some one connected with this company would inform me if all the shares are disposed of; and why the project was never publicly brought out, contrary to all custom in such matters?—P. O.: Manchester, June 8. (We have received several similar letters from different parts of the country, but the insertion of the above will suffice, as, doubtless, some information will be elicited.)

**"C. G."**—Detailed articles on the several gold companies appeared in the *Mining Journal* on the 15th Jan., and on the 9th April last.

**GOLDEN MOUNTAIN MINING COMPANY.**—Sir: Having seen in your *Journal*, a fortnight ago, an enquiry respecting this company, I naturally expected some answer in your last week's paper: that not being the case, I should be glad to know from the secretary, or one of the original shareholders (as they have a voice, and are the only persons to be treated with), what they intend to do? More than six months have passed, and as I read in the *Journal* some time ago that nothing had been done, I think the public should not be kept in suspense and ignorance; more especially when it is known, from their last report, that the principal part of the money is still in their hands; and if they do not intend to carry out what the company was formed for, they should wind up the affair.—A. B.: Drury-lane, June 7.

**"Libra" (Sheffield).**—We think not: but by writing to Mr. R. Symons, of Truro, every particular can be ascertained.

**"Inquirer."**—No dividends have been paid in Cook's Kitchen for several years past; but the mine is now steadily improving, and, with the benefit of a large amount of additional machinery lately erected, there is little doubt that at no distant period it will again give good profits.

**"X. Y. Z."**—Laford Consols, and other mines, were omitted in consequence of no notice of business being transacted in them having been furnished.

**"Omega"** shall be answered next week.

**"R. F." (and many others, who frequently send to us for advice upon strictly chemical subjects).**—The questions put are simple enough, but the answers required, if properly given, would occupy more space than we can devote to correspondents. Our advice to "A Viewer at a Colliery in Yorkshire," is to apply to an analytical chemist, whose business it is to reply to such queries; a guinea thus spent would frequently save a considerable outlay.

**"A. K."**—Information respecting Wheel Wrey can be obtained on application to Mr. J. K. Reynolds, 21, Threadneedle-street.

**GREAT SHEBA CONSOLS.**—Sir: The person in Stourport wishing to increase his interest in Sheba Consols at 5½% would be more in character, apparently, to offer his own shares at that price, if he thinks ill of the concern, than adopt the course he has done.—ALFRED KINGDON: Bideford, June 6.

Some particulars respecting the working of Mr. Moutis's improved syphon will appear in our next *Journal*.

We think the publication of the letter from "An Observing Shareholder" (Tavistock) would have a contrary effect to that intended. The agent, or some party connected, should forward an authenticated statement of facts: mere comment, or expression of opinion, by an anonymous writer, can have no weight with the shareholders.

The letter of "A Subscriber," on the Nova Scotia Mining Company, has been received; also that of "A Shareholder" in the Great Crinnis Mine.

**IMPROVEMENTS IN THE STEAM-ENGINE.**—Full details, with drawings, descriptive of Mr. Craddock's late improvements in the steam-engine, will appear in our *Journal* of next week.

**MINING GLOSSARY.**—For the convenience of new adventurers, and others requiring the information, we have prepared a Glossary of English and Foreign Mining and Smelting Terms: it is neatly printed in a useful form, and can be obtained through any bookseller, or at our office, price 2s.

**THE COST-BOOK SYSTEM.**—So much interest being evinced for information respecting the Cost-book System, we have reprinted, as a pamphlet, the paper descriptive of its principles and practice, which appeared in the *Mining Journal*. Copies can be procured through any bookseller or newsman, or at our office, price 6d.

Just published, price 2s. 6d.

### THE MINING GUIDE:

Containing the following particulars respecting each British and Foreign Mining Company:—

Name of mine	Captain
Province	Committee
Where situated	Secretary
Putter	Offices

WITH THE MINES OF LAKE SUPERIOR, AND AMERICA.

Also the NAMES AND ADDRESSES OF MINING AGENTS AND DEALERS IN SHARES.

To which is added,

A COMPLETE SET OF AMENDED RULES FOR THE MANAGEMENT OF MINES ON THE COST-BOOK SYSTEM.

The object of the *Mining Guide* is to afford a means of communication between inventors and others with parties connected with the working and management of mines, to introduce manufactures applicable to mining purposes; acquire information, &c.

It is particularly requested that all communications may be addressed—

TO THE EDITOR,

*Mining Journal Office,*

25, FLEET-STREET, LONDON.

Post-office orders made payable to Wm. Salmon Mansell, as acting for the proprietors.

## THE MINING JOURNAL

### Railway and Commercial Gazette.

LONDON, JUNE 11, 1853.

This surely is an age of "frantic sympathy." In our paroxysms of fine feeling, we forget the miseries of our white brethren, and with the most amiable Quixotism address ourselves to the emancipation and social relief of the black, the brown, the yellow, the—in fine, all the varieties of Samboism which constitute the descending scale of humanity. This would be all as it should be, if this erratic charity had not superseded a high and important Christian duty at home—one, perhaps, too homely to be appreciated by the modern sects of philanthropists, who, bent upon making the Ethiopian white, set their thoughts abroad, disregard proximate wretchedness, misery beneath their foot-tread, for remote barbarism, and high sentimentalism after black Romeo's and Juliet's, opaque Caesar's, and ebony Pompey's. Charity seems bound for a foreign mission; and to be Stowe-ite is now the fashion. *Uncle Tom's Cabin* is created a shrine to which maudlin sympathies wend on their pilgrimage. Will nobody write "The Life and Labours of the English Collier," and, in presenting to the vagrant host of our good but mistaken people the painful realities of human suffering in our coal-fields, win them from the pursuit of those phantasms which have been so magically called into existence in African wilds and American cotton-fields?

Charity, according to the old adage, should begin at home; and we venture to suggest that those who aspire to be good—really good—Samaritans, will best show their laudable intent by first pouring balm into the wounds of their kind here, ere they start on expeditions to unriver the fetters of slavery in foreign lands, and to fandango the races of the wild into a state of civilisation, to which they are unsuited, and which can only be arrived at by the gradual and systematic progress with which Providence inspires the human mind to ascend to its natural elevation. Far be it from us to arrest the good intentions of those who endeavour to enlighten and ennoble the human family in all parts of the world. We are no less advocates for this order of benevolence because we fulfil, as energetically as we can, the duty of first putting in practice at home all the commiserations which are lavished on objects abroad—objects magnified into the "interesting and sublime" by misty distance.

The civilised world is fast eschewing the use of slave-grown produce. The sentiment which dictates this act is elevated, noble, and refined, and must tend ultimately to the general good. Slavery is abhorrent to British feeling, but we venture to say that the hearths of England are warmed by the product of industry, in the prosecution of which humanity suffers more—the degradation of the lash excepted—than in all the bondage labour which the slave states of America impose. To awaken a just consideration of the social debasement at this moment existing in our coal districts, must the picture be presented of man from youth to age subjected to a toil the most pernicious in its effects,—nay, destructive to every mental and physical organisation. Taken from his mother's fostering care to the coal-pit, the child grows, in ignorance, to boyhood, and is then transferred from surface work to the dark and noisome fathoms beneath, there to work on seams which generate those gases and vapours, to inhale which blanches the traces of youth and health, and too frequently annihilates life itself.

The bodily suffering incident to labour in the pits can be well imagined, when men are not unfrequently seen to issue from the operations of underground with either shoulder a mass of raw abrasion, caused by having to work for hours, prone to the earth, in a narrow passage, formed as the workman proceeds by his excavating (alternately right and left) the mineral from a pendant mass of ironstone or rock. What are the hardships of slavery to this? But it unfortunately does not rest here. A moral neglect pervades the community generally. Ignorance encompasses them with her shadows, consequently that which is evil is not known through

right precept or moral example. Vice predominates; man becomes the animal, and if ever and anon reason asserts herself in directing the eye of thought from this dark abyss to the foot-stool of the Divinity, religion is felt through superstitious awe, rather than through rational belief and Christian faith in the mercy of a protective and all-directing Providence. Here there is a meet and great occasion for the exercise of philanthropy, and none can contradict the fact that it is essentially requisite.

The position of the working miner in our coal districts is a disgrace to the country; for no plea can be offered in excuse for the duration of a servitude, too base for even the feudality which characterised the darkest ages on the page of history. Instead of wandering far-a-field to qualify the abuses of other countries, let us apply ourselves to the correction of those which exist in our own. It cannot be denied that the *truck system* is rife, despite enactments in Staffordshire, as well as in other coal sites: it is a means ingeniously applied, it is true, in the hands of butties, to reduce the men to their gross dictation and iron rule. In this matter, we apprehend, our Government Inspectors have been somewhat remiss. Surely they ought to interfere to the extent that the law, of which they are the representatives, should not be evaded; and that the unfortunate working men should be protected from the rapacity of those who speculate on their labours. There must be an end put to such Jewish dealing and petty oppression. The Government must not waste its energies, as hitherto, on mere enquiries; and although the proper ventilation of the mines is of primary importance, the details of management, which now send many a child to bed supperless, must not be passed over as too trivial for notice or consideration. The system which has been successfully founded in Belgium, has been found eminently worthy of being held up as an example; and, however we may doubt the utility of retarding legislation, until another report shall have been added to that made by Mr. SEYMOUR TREMERE, in 1847, we estimate at its full value the fact, that the entire mining management ordained by the Governments of both France and Belgium, and strictly enforced, will be found a firm foundation for the system we desire to see promptly organised for the benefit of the coal-mining community.

In the last week's *Journal* we gave the principal heads of the laws relating to the operation of mining in Germany; and we particularly pointed out the plenary powers with which inspectors are there invested for the protection of the employed. The proper mode of ventilating his mines is with us the most desiderative point; but how is it to be arrived at? Obviously we are dependent on the capacity of the Government engineers for the discovery; and if care be taken that the corps to be appointed shall consist of men of known educational acquirements and practical experience, we are confident in our anticipation of results as beneficial as the commissioner's report records; and we readily quote a paragraph therein of much importance as a true guide to our deliberations. Mr. TREMERE remarks:—"In considering the working of this system of inspection, it is necessary to bear in mind that the plans of working and ventilating every new mine, or even every new pit in an old mine, have been submitted to the inspecting engineers for their approval?"—hence the fewer number of accidents, even in the fiery districts of Belgium, as compared with such catastrophes in our own; and it will surely not be too much to require that similar restrictions shall be enforced by the new enactments, which, we are informed, are now being framed by our Home Secretary.

It is not for us to advocate one or the other of the systems of ventilation, so ingeniously and scientifically advanced, but we are convinced that each, possessing its peculiar merits, can be rendered available to certain sites, stratal natures, and distribution of workings. The discipline of coal mines must not be tied down to any single theory. Let science and experience preside—allow their influence to be unfettered, and the natural consequences must be, progress and social improvement.

Want of space compels us to leave this subject for the moment; but we shall recur to it in our next, as well as discuss the valuable opinions of Mr. J. KENTON BLACKWELL, F.G.S., which we find embodied in a letter to Lord PALMERSTON, on the origin of explosions in coal mines.

Resuming the subject of gold quartz workings in Australia, to which our attention has been called by Mr. CALVERT's proceedings, we propose briefly to sum up the present state of the case, so far as it can be ascertained from the researches of that gentleman and others, and from the documents accessible to the public.

First, as to the supply of quartz. Upon the general geological character of the district, in reference to auriferous organisation, we have the scientific investigations of MURCHISON and other geologists, assigning to Australia its distinct classification as a gold-bearing region, considered in relation to other members of the geological structure of the globe. As to the distribution of gold quartz in the region so defined, we have the reports of Mr. STUTCHBURY, the Government Geologist, Mr. HARGREAVES, and the Rev. Mr. CLARKE, who, being specially commissioned by the Government of New South Wales, have sought gold-workings in what were considered the most promising localities. The number of gold sites so determined by them is very great; but, as their chief object was to find surface workings for the diggers, they have not done so much as might have been expected for the determination of the gold quartz formations. This was left to Mr. CALVERT, who, being jointly prompted by the instigations of private enterprise and the love of scientific research, made special explorations in this department, and was most successful in his results. While the Government functionaries moved about as rapidly as possible, examining the river courses, and ascertaining the presence or absence of nuggets, grains, or scales, without making any determinate survey of the extent or productiveness of such formations, Mr. CALVERT sedulously worked out the geological features, with an eye to the ultimate value to the community of what may be called the permanent mineral resources. In time, all the surface deposits will be worked out, as some are in Australia, and so many in California, but the results of Mr. CALVERT's explorations will remain to support the mineral enterprise of many years' active exertion. Such are the gigantic quartz veins already described by us, the Macquarie vein, and that of which the locality has not been published.

In a country possessing such characteristics, it must be tolerably evident that there is a sufficient extent of formations available for the operations of the miner and the capitalist. In Australia, we have not to deal with a duchy or a basin of 1000 or 2000 square miles, but with geological regions of 100,000 or 20,000 miles of superficial area. We believe we are correct in saying, that this is an extent of mineral area as yet unexampled in mining annals. There are, it is true, geological districts, such as the Permian and others, in the east of Europe, made known to us by the genius of Sir RODERICK MURCHISON, which are of vast extent, but they do not come under our class of regions of productive mineral wealth.

As to the extent of formation, we think no reasonable doubt can now be entertained; for the most extravagant speculations of the epoch of the gold discoveries have now been realized. The next question is, as to the proportionate productiveness. This is a question very difficult to answer with exactitude, though what we yet know is most satisfactory. With formations so immense, and which would require thousands of specimens to illustrate them, and thousands of analyses to determine their constitution, it will be long before what may be called a comprehensive collection of data will be obtained. In a coal basin or an ironstone strata something may be stated, generally, as to the productiveness of a district, and the same may be done with regard to the copper of Lake Superior, or South Australia, or the lead of Missouri; but practical miners are well aware how much the vein formations vary in productiveness. Our Mining Correspondence will show lodes from 10l. per fathom or less to 100l. per fathom or more; and gold ores vary still more, as so small a proportion of metal will constitute a workable ore. This will be at once seen when it is considered that one-twentieth per cent. is in gold 50l. per ton, and that one per cent. is 1000l. per ton; whereas, even in silver ores, one-twentieth per cent. would be only 3l. or 4l., and one per cent. 60l. From geological peculiarities, however, what are called gold quartz veins have sometimes no gold at all in them. Such is the case, according to Mr. CALVERT, with considerable portions of the Macquarie vein, and it will be seen how needful it will be, in the formation and working of quartz companies, to have the advice of competent parties. We know the way in which sham companies are formed with sets which adjourn some great and rich lode, which, by the bye, never enters the sett; but if the public are not on the alert, they will have Australian companies paying large sums for localities on a great quartz vein, from which all the stamps and all the chemists in the world will not succeed in extracting homoeopathic doses of gold.

If the views we stated last week are correct, there must be veins from which all the gold has passed, and from which, consequently, no more is to be hoped, and the richer the neighbouring district, the more discouraging would be the prospect of the main gold trunk, or conducting vein.

Between this state of barrenness, and what may be called gold mountains, there is every degree of productiveness. Of the Macquarie vein, Mr. CALVERT does not consider portions to be rich, according to the Australian standard, and yet the minimum yield of the ore in the claims he sold to Messrs. ROBEY and LLOYD is 100l. per ton, under proper treatment, undeniably an enormous yield in any other ore. This, at the present standard, is equivalent to a copper ore of 80 per cent., and masses of lead would require a large proportion of silver to compete with it. Compared with the gold ores of other countries, we may observe, that some of the Imperial Brazilian gold ores are only worth 2l. per ton.

What Mr. CALVERT would consider a rich ore we hardly know, when he shows to us specimens from his other quartz vein valued at 26,000l. per ton, and from which he has already obtained large returns. It is this vein the site of which he has kept to himself, as he intends working it.

These facts, and those we know as to the Great Nugget Vein, are scanty, but they are very encouraging for the prospects of the Colonial Gold and other companies which have chosen Australia as the scene of their operations. We may observe, by the bye, that the Agua Fria Californian Company has this week received very satisfactory returns. For the Australian companies we must necessarily wait longer, as most of them have yet to choose their locations.

Although the quartz ores are in many cases superficial, yet it may be worth while to consider the question of wages in reference to the cost of extraction and reduction. Of course, for the time the labour market in Australia has been seriously disturbed, but we may contemplate the future with confidence, because we may count upon our resources beforehand. We know, for instance, that Chinese labour is available, and that, under the new law, contracts for labour made abroad will be valid within the province; but there is every reasonable prospect of English labour being applicable, with profit. We must not allow our minds to be distracted by the consideration of the earnings at the gold diggings; for, after all, the prices of provisions will materially influence the rate of earnings and wages. While the population rove about from digging to digging, the cost of provisions and supplies must be high to compensate the trader; but at a settled gold company's reduction station, provisions and supplies will be laid down at regular and low rates, and thereby the labourer be enabled to work at lower wages. Then, too, his wages will be regular, not precarious, his home will be permanent, and home comforts be accessible to him. The economical value of these considerations experience has proved, and the re-organization of labour in Australia will be in conformity with the same principles. The result will be, prices equivalent to those paid in Michigan, Chili, and South Australia, except so far as it may be considered advisable to substitute Chinese coolie labour in any part of the operations.

As to machinery, that point is settled. Competent machinery of all kinds can be sent out, but, where fuel is required, the cost of fuel is likely to be very high. It is yet, however, to be ascertained whether the reduction processes hitherto employed are either economical or effective. It must be observed, that though a process in itself may appear economical, yet that efficiency in extracting the greatest amount of gold is the true test. It seems to be the opinion of Mr. CALVERT, who has embraced the reduction of Australian gold ores among his comprehensive investigations, that the reduction processes are particularly inefficient for the poorer ores, and that great waste takes place. Where the ore is very rich, or where the gold is in large grains, there is little risk in the extraction; but where, as in many of the Australian, and even Californian, ores, the gold is imperceptibly distributed, very different processes are requisite. Specimens of reduction by Mr. CALVERT's process were exhibited at Mr. WYLD's conversazione, but no explanation of the process has been given, though it seems desirable, as the amount of yield is represented to be large, as much as twice or thrice the proportion realized by amalgamation or reduction by fusion. The more information that is obtained upon these subjects the better, as the operations which will be carried out must be upon a large scale, and embrace a large amount of capital. However considerable the information may be in the aggregate, yet we require much more. Considerable benefit has resulted from the colonial explorations, and Mr. CALVERT has determined on opening a survey office, and making his geological and mineralogical surveys accessible to the public, but something more must be done by the Government to meet the requirements of the public. The gentleman we have alluded to several times has, among others, largely contributed to the advancement of science, and is prosecuting with great spirit investigations and researches, of as much practical as theoretical interest; but we can see no reason why the Government should not exert itself so as to secure the effective exploration and investigation of what we look upon, in our special point of view, as one of the most important branches of mineral enterprise ever opened to the public. It may be questioned, whether, looking at the whole moral results, the recent expansion of the iron manufacture, vast as it is, is comparable to the social influence of the gold discoveries. At present the Government listlessly profits by the temporary and, it may be, evanescent operation of these discoveries, without making any attempt to secure their permanency, as a means for the employment of labour and the investment of capital.

It is, no doubt, a great benefit to employ one hundred thousand of the labouring classes as gold diggers for some few years, but how much greater the relief to be obtained from the prosecution, on a solid basis, of the less precarious and more legitimate operations of gold mining and reduction? There is, as we have sufficiently shown, the field for the application of capital, and there is at the present time abundance of capital available, if the public could see their way to apply it soundly, and feel confident of being guided by well-authenticated and reliable information. If we wait till, in the slow course of events, the public are as well instructed in gold mining as in other branches of mineral enterprise, we may spend many years unprofitably. We are nevertheless free to confess that, though we urge this duty on the Government, we have not implicit confidence that our advice will be acted upon. There is too great a degree of inertness on the part of the authorities in all that relates to mining enterprise, whether, as we showed last week, with regard to the safety of the miner, or whether with regard to geological surveys and the discovery of our mineral treasures. The Ordnance Geological Survey and the School of Practical Geology and Mines have been for years suffered to linger for want of funds, and the public have been debarred from a great extent of benefit which, under more judicious administration, they might have received. Just as, in Australia, private enterprise has been the pioneer, so it has been here. The development of our new coal-fields, the working of anthracite, the establishment of the sulphur manufacture, Mr. MESSEY's discovery of the black-band ironstone, the establishment of the iron manufacture in Northamptonshire, and the utilization of the phosphates, which have so powerfully contributed to the wealth of the country, are all owing to private enterprise, though the authors of these great benefits have received no public reward, and in rare cases have they met with any other acknowledgment. The case of Australia is, however, so marked and striking, that the Government may perhaps be induced to depart from its accustomed track, and second efficiently what has been so successfully begun.

There never was a better principle promulgated than that which is recognised in the jurisprudence of this country—"caveat emptor." In a great commercial country like England, indolence, want of vigilance, and incaution, properly meet with discouragement; and accordingly those who are about to lay out their money are told, somewhat curtly, but still emphatically, "Let the purchaser beware." No doubt many cases may arise in which no activity and no vigilance will suffice to unravel and detect fraud, and, therefore, another most important rule is applied to cases where contracts are entered into, either upon false representations, or where facts material for the purchaser to know are wilfully suppressed, such contracts cannot be enforced either at law or in equity, and the injured party is entitled to redress. But it must be borne in mind that we live in a world of speculation, based upon opinion and judgment; and it would be monstrous if a man of no judgment, and no intelligence, were permitted to embark in a scheme of enterprise, with the full assurance that if it proved a failure he could easily turn round, and compel from his brother-speculators the return of his money.

The case of JENNINGS v. BROUGHTON and others, which has lately been argued before the MASTER of the Rolls, affords a strong illustration of the value of the legal maxims to which we have referred. The plaintiff, a barrister, had been acquitted for many years with one or more of the defendants, who were possessed of a mine called Craig-y-Mwyn, of which they took a lease in the month of June, 1850, for 21 years, and projected a joint-stock company, upon the Cost-book Principle. The case attempted to be made by the plaintiff's bill is, that he was induced to purchase shares in



this undertaking by exaggerated reports, and untrue representations put forward by the defendants; and the prayer of his bill is, that he may be indemnified for the money paid for these shares, for calls made upon them, and for interest upon the outlay. On the other hand, the defendants deny they practiced any deception upon him; they allege that they opened to him every source of information which they possessed themselves, and that he was well and accurately acquainted with the prospects of the mine, and every particular about it, before he purchased the shares in question; and they contend that if he made an unfortunate selection for his investment, he did so with his eyes open, and fell within the principle of equity laid down by that great lawyer, Lord Rosslyn, in former times, "I will not aid a purchaser who did not choose to enquire."

Far be it from us to pre-judge this case. It has occupied the attention of the MASTER of the ROLLS for several days; the evidence on both sides is most voluminous, and his Honour has taken time to consider his judgment. As far as the particular case is concerned, therefore, it may be said to be *in gremio legis*, but we deem it an appropriate time to call the attention of our readers to the basis upon which contracts of this kind rest. If untrue representations are made, with the intention to deceive and with knowledge of their untruth, the deceiver deserves no mercy; but if a scheme is fairly put forward, and every proper means of information afforded to the public, we confess ourselves attached to the application of that useful maxim of our law, *caveat emptor*: and in conclusion, we cannot forbear expressing our opinion that the man who will not participate in a loss fairly incurred, is just the person to open his hands very wide, when anything is to be got by fair means or otherwise.

KEYNE v. POWELL, Q. B., May 6, 1853, Lord CAMPBELL delivered the following judgment:—"This was an action of trespass for breaking and entering the plaintiff's close, and digging minerals. The two material pleas are, 'not possessed,' upon which issue was joined, and a special justification, under a lease granted to BRAITHWAITE and PROTHERO. To which there was a replication of the Statute of Limitations to the right of entry claimed, as the defendant alleged, and upon that issue was joined. The question was whether, according to the evidence at the trial, and the rules of law, the verdict upon these two issues should be found for the plaintiff. It seems to us, that the defendant is entitled to have the verdict entered for him, upon the plea of 'not possessed;' we think, that at the time when the alleged trespass was committed the defendant must be considered as having been in possession of the minerals demised to BRAITHWAITE and PROTHERO by the lease of the 8th March, 1821. To arrive at this conclusion, it is not necessary to consider the operation of the Statute of Uses on the lease, or to enter into the various legal subtleties which were presented to us in the course of the argument on both sides. The foundation of our opinion is, that at the time when the lease was executed, and the term granted had commenced, BRAITHWAITE, one of the lessees, was tenant of the farm under which the minerals demised lay. Being in possession of the surface, in point of law he was in possession of the minerals. He had no right to work the minerals; if he had done so, it would have been waste, but the lessor could not have sued him in trespass; and if strangers had worked the minerals, even without working the surface, BRAITHWAITE might have maintained trespass against them. That this surface and the minerals may be discovered in title from BRAITHWAITE, the tenant, appears abundantly from the cases cited, of Sir WILLIAM CURTIS v. DANIEL, 10 EAST, 273, and HEMPHRIES v. BROGDEN, 12 Q. B., 739; but the presumption is to the contrary; and here there is nothing to destroy the presumption down to the time when the lease of the minerals was granted: for when BRAITHWAITE became tenant of the surface, the minerals belonged to the lessor, and they could not be considered as exempted from the demise any more than timber trees. This doctrine never has been questioned, unless with regard to minerals under a copyhold tenement, as between the tenant and the lord. See LEWIS v. BRAITHWAITE, 2 B. & Ad. 437, where it was held, that although the property in the minerals was in the lord, the possession of them was in the tenant, and that the tenant may maintain trespass against the owner of the adjoining colliery, for breaking and entering the subsoil, and taking the minerals. Lord TENNERDEN there says, 'The general rule being, that he who has the surface has the subsoil; it seems to me that the copyholder has possession of the subsoil, though he may have no property in it.' Justice LITTLEDALE adds, 'It is not disputed that a freeholder, or one holding under him for life or years, or at will, has possession of the soil from the surface to the centre of the earth.' Justice PATTERSON fully concurs, saying, 'There is no distinction between a tenant holding under a freeholder, and a copyholder holding at the will of the lord, according to the custom of the manor, as far as the possession of the property is concerned. Although the copyholder may have no right to make use of the minerals, he has a sufficient possession to entitle him to maintain trespass against a wrong doer.' BRAITHWAITE thus having been in possession of the minerals as tenant from year to year, when the lease was continued to BRAITHWAITE for 99 years, can it be said that the lease ousted him, and re-vested the possession in the lessor? BRAITHWAITE must be considered as continuing in possession, his estate being enlarged by the lease; and being in possession, there could be no necessity for any entry to give him possession under the lease; and we have not been told how he could have entered: the surface being in himself, when the lease was executed, he was then in a position to have taken a release in fee of the mineral, or any enjoyment of the fee-simple as tenant from year to year. The lease for 99 years must for this purpose operate in the same manner as a re-lease for a term. Had BRAITHWAITE been the sole lessee of the minerals, the point does not appear to admit of any doubt. Does it make any difference for this purpose that the lease was to him and another? Must not his possession under the lease be considered as the possession of himself and his co-lessee? BRAITHWAITE being lawfully in possession under the lease, his possession enures for the benefit of both, and the interest passing by the lease cannot be considered as merely an *interesse termini*. The lessor could not have entered on BRAITHWAITE as far as the minerals were concerned, and neither the lessor, nor any one claiming the reversion under him, can be considered as having been in possession any time since the lease was executed. There was a privity between the two lessees sufficient to make the possession of the one the possession of both; and, under the circumstances, there was no act to be done by PROTHERO to convert the *interesse termini* into a vested interest in the message. For these reasons the defendant, who has, in truth, all the interest of the two lessees, must be considered, so far as regards the plea we are now discussing, as lawfully in possession when he committed the alleged trespass of working the minerals. Then, as to the Statute of Limitations; if BRAITHWAITE and PROTHERO are to be considered as having been once lawfully in possession under the lease, it further appears to us that the defendant is entitled to the verdict on the issue arising out of the plea of the Statute of Limitations to the special justification. This plea confessing and avoiding, admits that the plaintiff was *de facto* in possession when the defendant entered to commit the trespass, and is founded on a right in the defendant to enter and take the coals as assignee of the lease. The plaintiff replies, that the right of entry relied on had not first accrued to the defendant, or those under whom he claims, within 20 years. If the defendant is confined to the right of entry under the lease, supposing that till the entry and trespass complained of there never had been any entry, and that the lease, therefore, was confined only to an *interesse termini*, the issues must be found for the plaintiff; for more than 20 years had elapsed since the granting of the lease and the first accruing of the right to enter. But we think that the defendant was at liberty to set up any right of entry which was vested in him; possession once having been taken under the lease, and that he is not driven to rely on the right of entry when the lease is supposed to have given him an *interesse termini*. Possession by him was, as the evidence of the trial showed, his possession of the minerals by BRAITHWAITE and PROTHERO under the lease, by reason of BRAITHWAITE's tenancy of the superincumbent surface, and the possession under the lease may be supposed to have continued till the plaintiff dispossessed, within 20 years before the time when the defendant entered to commit the alleged trespass. Upon this latter the new right of entry would accrue, and this may well be the right of entry on which the defendant relies in his special justification; but this right of entry first accrued within 20 years; therefore, upon both issues there ought to be judgment for the defendant."

MARKER v. KENRICK.—The recent decision of the Court of Common Pleas in this case has decided the technical yet important point, that the lessor of a mine may maintain an action on the case against his lessee for an injury to the reversion, by improperly working the mine, notwithstanding that such injury is also a breach of the lessee's covenant, upon which the lessor might have sued. The Court, in giving judgment, said,—The case

of KINLYSIDE v. THORNTON, 2 W. Black 1111, is expressly in point, and decides that if a lessee commit waste, an action in the case is maintainable, although there is a covenant in the lease upon which the lessor might have sued for the same injury.

We have no doubt but that Mr. MURCHISON's letter has been read by nearly every shareholder in the NORTH BRITISH AUSTRALASIAN COMPANY. That gentleman's long connection with the undertaking as a shareholder, and his intimate knowledge of its affairs, fully entitle him to adopt the course he has taken. Many of our friends in the North, who stood aloof when Mr. MURCHISON exerted himself, about three or four years ago, to ensure the proper management of the concern, must now be greatly astonished at the passive, if not active, resistance they gave to the measures he then proposed.

"From the nature of the advice from Auckland which I received (says Mr. MURCHISON), I was led, about the end of 1849, to address a letter to the directors, urging upon them the absolute necessity of sending out a larger steam-engine; and in the month of Sept. 1850, a communication from me appeared in the MINING JOURNAL, of which the following is an extract:—'Last year I addressed a letter to the secretaries, in which I urged the necessity of dispatching without delay a steam-engine of 100-hp. cylinder; but I received no reply to that communication, and whether my suggestion was acted upon I know not; but of this at least I am certain, that if it has not been adopted, the time will come when the wisdom of such a course will become palpable in the consequent delay of the works and the development of the lodes.'"

"And I went on to say:—'From all the accounts I have received and heard of this property, I feel as convinced as it is possible to be in such cases that the lode is a valuable one, and that if means were promptly taken to secure the drainage by a pumping-engine of sufficient power—say, 30 or 60-hp. cylinder—the shaft sunk to cut the lode at not less than 30 or 60 fms. deep, and an intelligent and economical system of management adopted, the result would be very important, and, indeed, highly remunerative. Even if the ore did not improve in quality in depth, such that now in sight would yield a good profit, if it were properly treated; and if the lode improved in depth a most valuable and productive property would be obtained.'"

"A leading article in the MINING JOURNAL also appeared in December of the same year, and it is worth being referred to, as confirming my views. The following extract will suffice:—'If we are rightly informed, there has been for some time an increasing conviction among the proprietors that they have committed the most suicidal act in treating so contemptuously the observations that have appeared at various times in this Journal, and in rejecting the sound and judicious advice frequently tendered by Mr. J. H. MURCHISON, particularly at the annual general meeting last year. It would be superfluous to refer to our numerous warnings, and to the exertions we have made to ensure the proper and judicious management of what we have always considered, and still believe to be, a valuable property. Our advice repeat the fact of the abundance of the copper ore, and that it only requires the management of experienced persons to render it a profitable concern.'"

"My predictions have been fulfilled to the letter; the mines have been suspended for a considerable time, from the want of adequate machinery, and the steps I recommended more than three years ago are only now about to be carried out, as appears by the memorandum just issued by Messrs. J. TAYLOR and SONS, who have lately been appointed the managers. Had the directors acted upon my advice, there can be no doubt but that immense quantities of copper would now have been arriving in this country from the mines, realising profits unusually large, from the late and present high price of that metal—a circumstance which, perhaps, would have proved more remunerative to those who have waited patiently for success for years than the rates at which they have lately transferred their shares to English proprietors, who are likely to appreciate more correctly the advantages they possess."

And with regard to the mode in which the calcining operations were conducted, Mr. MURCHISON refers to the gross blunders which were at first committed, and which he forcibly exposed in his letter to the shareholders in November, 1849; and he draws attention to the report of Mr. BEGER, just issued, which shows that his recommendations have been carried out in this respect, and the consequent successful results. Touching the real value of the properties of the company, we think every one who peruses this letter must be struck with the clear manner in which Mr. MURCHISON shows the extraordinary results to be realised from their proper development. As to the Island of Kaw-aw and its copper mines, he appears to have had for years a strong impression of their immense value.

"It is scarcely necessary," he says, "to give proofs of the existence of large quantities of valuable copper on this island. The correspondent of the Times refers to the fact about three or four years ago, and states that it was expected to yield a profit of 60,000*l.* in the following year, while to the present time about 40,000*l.* have been sold at Swansea, although the workings are only about 24 fathoms deep, and the only machinery on the mine an old 12-cylinder steam-engine; and, moreover, in face of the greatest mismanagement. Numerous statements of the extent of the produce of the mineral have appeared in the columns of the MINING JOURNAL in the last few years, while the extracts from private correspondence of my own, may be regarded as giving authentic information on the subject, and show the great value of the property."

This correspondent writes, on the 11th of February, 1849:—"Large quantities of ore have been discovered in the 16 and 24 fm. levels, and some in the 9 fm. level." Also, "The lode at Kaw-aw is very regular, having no branches; it averages about 9 feet wide, ore all through;" and, "A sufficient experience convinces us that, under good management, vast quantities of ore may be raised at a cost not, in all, exceeding 25*s.* per ton." In 1850, Mr. WHITAKER wrote him: "It will thus be seen that the lode has been but very superficially explored; that there is not more than from 2000 to 3000 tons of ore in sight altogether, averaging not more than 8 per cent.; but a course of ore, quite as good, and averaging 6 feet wide, runs along the bottom of the 16 fathom level of both mines for at least 40 fathoms." After giving full details of the character of the lodes, and of the workings, Mr. MURCHISON thus remarks:—

"Judging from the character of the lodes of the richest mines in this country, and, indeed, the usual indications of a most productive mine in any part of the world these statements could not be more favourable. The large rocks of gossan and manganese on the backs, together with the great prevalence of iron pyrites (known better as 'mudie'), in Cornwall, where it is a standard proverb, 'mudie rides a good horse' in the shallow levels, may be said to be unmistakable evidences of an immense deposit of copper ore at a deeper point. The workings are as yet but about 24 fathoms deep; and, although the ore sent home has realised only 40,000*l.*, still the fact that it is a comparatively low produce at such a depth is a much more favourable circumstance than if it had been richer, and there is little doubt but that by the time the shaft is sunk 30 or 40 fathoms deeper, the pyrites will be found to give place to an abundance of rich copper ore."

We must refer our readers to the letter itself for the recital of the absurd schemes seriously resorted to by the colonial officials for draining the mine, which would have been a bar to the profitable working of the richest mineral property in the world. "I think no one (he remarks) will require further reasons for the want of success which has hitherto attended the operations of the company at this part of their property. The mine has been discovered for eight years, and the deepest point is only 24 fms., and all the machinery on the mine an old 12-in. cylinder engine purchased in the colony."

Some valuable information is then given relative to the Bon Accord Mine, adjoining the celebrated Burra Burra—among which we may give the following report by Capt. THOMAS BUELL, who is believed not only to be a miner of extensive scientific and practical acquirements, but to possess the advantage of having long superintended the mining operations carried on upon the adjoining Burra Burra property. Capt. BUELL, in his report referred to, upon the Bon Accord property, thus observes:—

"On an inspection of the map, it will be seen that all the courses of ground that have been productive of copper ore in the Burra Burra traverse the Bon Accord, where they have been opened at different places to a depth varying from 1 to 19 fms. The most southern and deepest workings on the Bon Accord are at the main shaft, where a cross-cut was driven to intersect the different lodes. One of these is 3 feet wide, and is composed of good gossan and spar, with the blue and green carbonaceous copper; but, although this lode is very promising in appearance, the quantity of ore in it will not, at present, pay for working. I would advise operations to be continued on this lode, as there is no doubt but that it will produce large quantities of copper ore; 8 fms. to the eastward there is a parallel lode to this, of considerable width, which is thickly studded with small particles of malachite; and 3 fms. more to the eastward there is another promising lode. It is my opinion that these lodes will meet in depth—say, 30 or 40 fms. from the surface—and yield an abundance of copper ore of good quality. These lodes show equally strong indications throughout the Bon Accord property over 60 chains, or three-fourths of a mile in length, which leads me to believe that the Bon Accord with proper working will turn out as much ore as the Burra Burra. But from the nature of the ground, and the manner in which the lodes have gone down, I do not expect that any quantity of ore will be raised from ground above the water level; and, consequently, before the Bon Accord property can be worked with advantage an engine must be procured to drain off the water."

Mr. MURCHISON remarks,—

"On receiving this report, the two companies engaged Captain Dalley, and, I believe, shortly afterwards sent out a steam-engine; but most unfortunately, if I am correctly informed, it was never erected, but was sold almost as soon as it reached the colony! What has since been done to develop the property I do not know; but, as far as the North British Australasian Company is concerned, I hope the managers here will immediately urge some vigorous steps for working the mine. There appears every chance of great success from spirited operations."

Mr. MURCHISON then gives full details of the other valuable properties of the company, and then remarks:—

"It is scarcely necessary to add anything to this statement; but I may safely say, that not one of the other Australian land companies of similar extent can compare its position to that of the North British Australasian Company; whether we consider its copper mines, its freehold and leasehold lands in the neighbourhood of the Peel River and other rich gold districts, or its large numbers of sheep and cattle, it is hardly pos-

sible to over-rate the success to be anticipated from its operations. And, when we bear in mind the high value to which all these properties have risen, it must be admitted that the comparatively limited capital which represents them is a very inadequate criterion of their true value; while the large amount of funds at the disposal of the directors from the lease of the new shares will afford ample means for fully developing the riches they possess, and most probably increasing that value tenfold. The profit upon last season's wool, after deducting freight and all charges in this country, was 4970*l.*, which, with the surplus stock of sheep to dispose of annually, reckoned at a very low price, gave upwards of 8000*l.* profit from wool and sheep alone. The wool and sheep of this season will probably yield a larger revenue, and enable the directors to propose a good dividend by the end of this year. With regard to the copper mines, large returns may be expected by the middle of 1854, if not sooner; and, when we look to the daily increasing demand for that metal from the numerous new purposes to which it continues to be applied, and the extension of the shipping trade, in which it is much required, there are the best reasons for anticipating great profits to the company from its mineral possessions. The present market value of the Coburn Copper Mines in Cuba is 570,000*l.*, and the total dividends paid have been about 678,000*l.*; the annual profits made at present being nearly 100,000*l.*, and the amount divided about 63,000*l.* It is my conviction that the North British Australasian Company's Copper Mines at Kaw-aw will, ere long, bear comparison with the Coburn Mines, without considering the company's third interest in the 'Bon-Accord' Mine."

In 1848 copper was—		£	s.	d.	per ton.
1849	"	84	0	0	"
1850	"	84	0	0	"
1851	"	88	10	0	"
1852	"	107	10	0	"
1853	"	135	0	0	"
	"	117	0	0	"

I think the directors would do well to consider whether the powers they possess under the deed of settlement of carrying on an 'agency, exchange, and commission' business might not be profitably adopted. The capital required for this purpose would be small, while the nature of the transactions would be safe, and the returns comparatively large."

The shareholders of the company are much indebted to Mr. MURCHISON for the trouble he has taken in placing before them, in so distinct and forcible a manner, the true position and prospects of their property.

The London Gazette of the 1st inst. announces that the QUEEN has been pleased to appoint the Right Hon. THOMAS BERRY CUSACK SMITH, Master of the Rolls of the High Court of Chancery in Ireland; Sir CRESSWELL CHESWELL, Knight, one of the Justices of the Court of Common Pleas in England; JOHN MARSHALL, Esq., one of the Senators of the College of Justice in Scotland; GEORGE WILLIAM WILSHERR BRAMWELL, Esq., one of her MAJESTY'S Counsel; JAMES ANDERSON, Esq., one of her MAJESTY'S Counsel; KIRKMAN DANIEL HODGSON, Esq.; THOMAS BAZLEY, Esq.; and ROBERT SLATER, Esq., to be her MAJESTY'S Commissioners for enquiring into the expediency of assimilating the Mercantile Laws of the United Kingdom and the Law of Partnership. The Commissioners having been appointed, the public will not have long to wait for their report, but it can scarcely be forthcoming in time for legislation during the present session of Parliament.

#### THE COAL TRADE.

The following is a statement of the delivery of coals, &c., in the port of London during the month of May:—

Ships.		Tons.		Ships.		Tons.	
Newcastle	323	98,831	Scotch	3	288		
Sunderland	161	45,574	Welsh	11	13,222		
Seaham	126	39,988	Yorkshire	11	11,556		
Hartlepool & West Hart	227	62,386	Small coal and cinders	13	1,380		
Stock, Middlesbrough, &c.	33	7,009					
Blyth	32	6,683	Total	989	265,316		

Coals brought by railway, and entered at the Coal Market during the month of May, 1853 .....

Coals brought by canal, and entered at the Coal Market during the month of May, 1853 .....

Coals brought within the London district on common roads, and entered at the Coal Market during the month of May, 1853 .....

Comparative Statement of 1852 and 1853.

Imported from 1st January to 31st May, 1852 .....

Imported from 1st January to 31st May, 1853 .....

Decrease in the present year .....

THE IRON AND METAL TRADES OF SOUTH STAFFORDSHIRE.

(FROM OUR CORRESPONDENT IN BIRMINGHAM.)

JUNE 9.—The metal market, during the past week, has been steady, and no further reduction in the price of copper has taken place; but, as was anticipated, there has been a considerable increased demand, in consequence of the recent reduction. Tin remains unaltered, the demand for Australian goods being so great as to render consumption of the raw material extensive. The iron trade during the week has been active, there being a considerable demand for sheets, plates, and rails; a large quantity of the latter being for the American market. The price of pig-iron, which was heretofore rather rapidly declining, has been better maintained during the last eight days. Good hot-blast pig-iron cannot be had from best makers at less than 4*l.* 10*s.*, although inferior quality has been sold for 4*l.* and under. Derbyshire iron, it is said, has been offered at 3*l.* 10*s.*, but the South Staffordshire iron obtains the preference at a higher figure.

In connection with the companies the business of which is conducted here, the proceedings of the Mixon Great Consols Copper Mine is not undeserving notice. A report was received to-day, by Mr. Lewis, the purser, from Capt. Bishop, managing agent, which is considered highly satisfactory—his surface operations are represented as going on satisfactorily, and the whole of the works underground being even beyond expectation.

The general trade of the town continues exceedingly good, there being scarcely a single mechanic or artisan out of employment. By the arrival of the *Baltic* from America, some good orders were received for summer goods, and especially jewellery and fancy articles, causing additional activity in our principal manufactures. The orders received by the above vessel from the Canadas are larger than usual, and give signs of a return of the Canadian merchants to this country for goods, which of late have been supplied by the French and German manufacturers.

Amongst the recent inventions brought under notice here, is Mr. Welch's patented fire-grate, which has been inspected by many at the patent-office of Mr. Payn, Bennet's-hill. This grate unites the advantages of an open fire, register grate, and a very powerful hot-air stove, the latter of which may or may not be used, at pleasure; and it has been already approved of by many experienced persons.

Amongst the gossip of the district, the celebrated gold nugget has obtained a special place during the past week; and the independence of the miners has been in no small degree enhanced by some of the circumstances connected with its finding. It appears that one of the fortunate owners of that precious lump is Mr. Green, of Wolverhampton, who was formerly a clerk in the luggage department of the London and North-Western Railway, in that town. His partners were Messrs. John Lees, and Daniel and John Evans, miners, of Oldham. Mr. Green returned to Wolverhampton on Monday last, and, as may be supposed, has since been the great object of curiosity in the district. He has supplied one of the local papers with an interesting account of his troublesome and perilous adventures, which, as the world is already aware, were eventually rewarded with his share of the magnificent nugget, weighing 134 lb. 11 oz., and the largest ever before discovered.

BRITISH COAL FOR THE STEAM NAVY OF FRANCE.—The Minister of Marine has given notice that on the 29th Aug. tenders will be received at Paris for supplying, for the next three years, the requisite quantities of English coal for their Government steam-ships. The coals are to be of the best quality, and exclusively of English produce—one-half from Newcastle, and the other from Cardiff. These Government contracts for English coal are looked upon with great jealousy by the large coal proprietors (or monopolists) of the mines of the Loire, St. Etienne, Alaix, &c.; but experiment has so fully testified the superiority of our coal as to justify the French Government in adopting it in preference to the produce of their own mines.

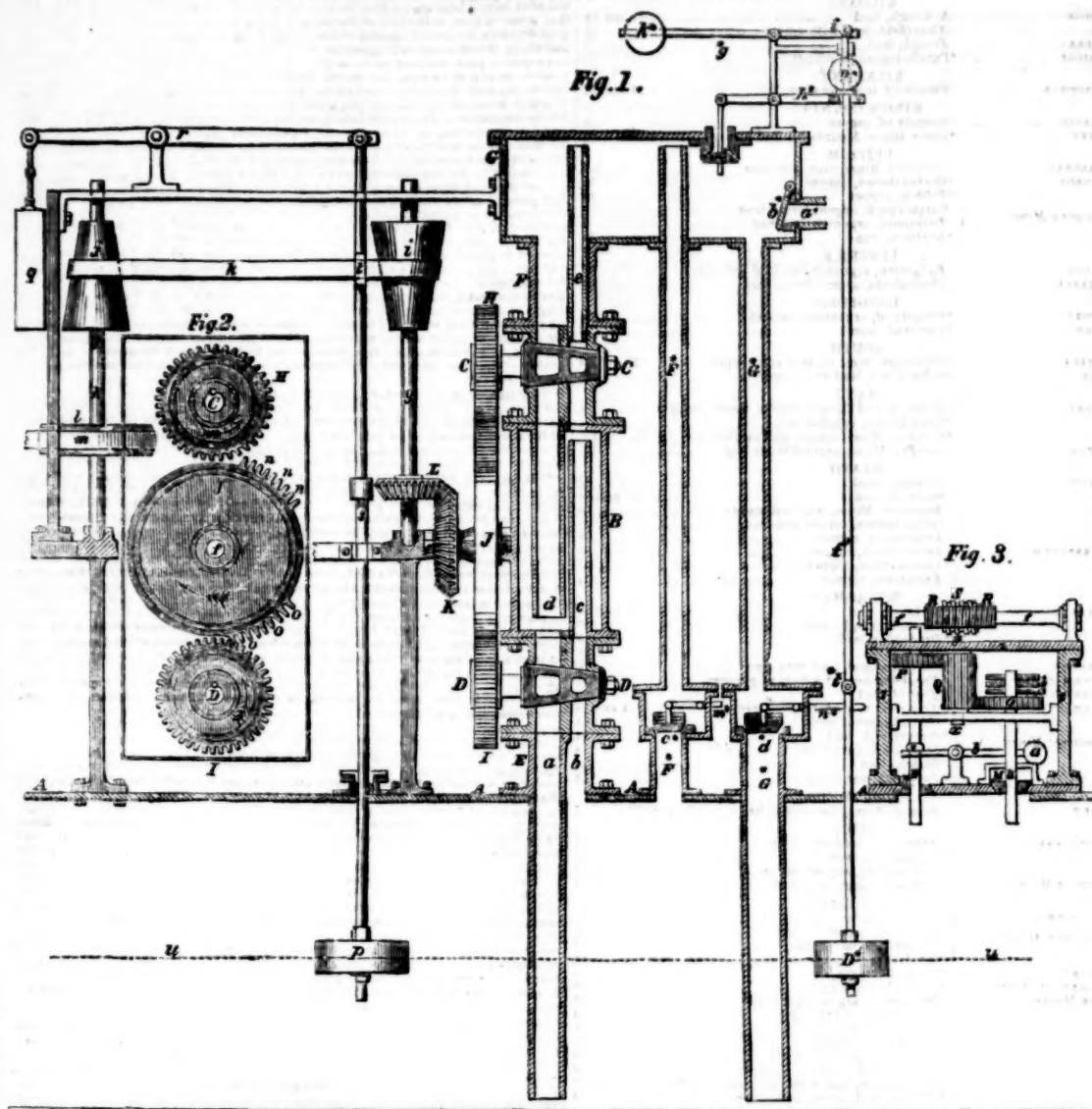
CUMBERLAND HEMATITE IRON ORE.—A company is in course of formation for working iron ore in the well-known district of Prizington Park, near Whitehaven. The ore is of the finest quality, producing 60 to 70 per cent. of iron, and where practicable to reduce it with charcoal it is considered equal to the finest Swedish and Russian manufacture. The undertaking, besides being profitable to the shareholders, will be of incalculable advantage to the producers of iron on the east coast; the iron ore lately discovered in such immense quantities in the counties of Durham and Northumberland is from 30 to 40 per cent. iron, but when mixed with hematite produces iron suitable for all important purposes. Mr. Joseph Pease lately read a paper before the Institute at Whitby on the deposit of ore lately found in that locality; his opinion was that if hematite iron ore could be procured to mix with it, the finest iron might be produced; he recommended the company should be formed under the influence of Mr. R. Stephenson, their member, which could not fail to be of great benefit to those concerned. We shall probably refer to this again next week.

200,000*l.*, including the 65,000 new shares of 1*l.* each, when paid up.



## THE PREVENTION OF STEAM-BOILER EXPLOSIONS.

SAMUEL HALL'S PATENT SAFETY APPARATUS, FOR PREVENTING THE EXPLOSION OF STEAM BOILERS AND OTHER ACCIDENTS TO WHICH THEY ARE LIABLE.



SIR.—Having seen in last week's *Mining Journal* an account of two explosions of steam-engine boilers—viz., one at Belfast, and the other at Dudley—I am induced to send you the following description of apparatuses, which I believe to be preventives for every occurrence which engineers and juries have at different times assigned as the respective causes of the numerous explosions of steam-boilers which have from time to time taken place; and if, with the use of them, the boilers be proved periodically with a small force-pump, provided for that purpose, I will venture to assert that no more boiler explosions will ever again occur.

Chadwell-street, Pentonville, June 1.

SAMUEL HALL,

Late of Basford, near Nottingham.

P.S. June 6.—In the *Times* of this day there is an account of another terrific boiler explosion, which would certainly have been prevented by the above apparatuses:—"From the *Dublin Freeman*.—We deeply regret to have to state that a most lamentable and fatal accident occurred on Thursday evening on board the *Times* screw-steamer, one of whose boilers exploded, causing loss of life and dreadful injuries to a large number of persons, several of whom are not expected to survive. We give the particulars of this deplorable catastrophe, so far as they could be ascertained last night."—See *Times*.

DUBLIN, Saturday.—Up to last night no less than eight of the persons who were injured by the explosion of the boiler on board the *Times* steamer, at the Pigeon-house on Thursday evening, had died. A number of those who yet survive have been so severely scalded, that they are considered to be in a most precarious state, and little hopes are entertained of their recovery.

My first process for effecting the above purpose consists in supplying the boilers with water (and at the same time measuring it) in an unerring manner, which is not the case with the usual pumps or other water-supplying apparatus. This process is effected by the opening and shutting of cocks (or valves) alternately. The operation of the former is as follows:—A A (Fig. 1) is the top of a steam-boiler; B is a cylindrical vessel, to be alternately filled with water and emptied into the boiler in a manner hereafter to be described; C C and D D are two double-way cocks, attached to it by flanges, for effecting that process; E is a pipe with two passages, *a* and *b*, which connect the vessel B with the boiler at the bottom; the pipe or passage *a* connects that vessel and the boiler at their bottoms, and the passage *b* and pipe *c* connect them at their tops; F is another pipe, which, by means of cock C C and pipe *d*, connects the bottoms of vessel B and cistern G, pipe *e* at the same time connecting the tops of such vessel B and cistern G, which last cistern is open to the atmosphere by means of valve *h*. H and I (Figs. 1 and 2), are two spur-wheels, keyed upon the spindles of the cocks C C and D D, and J is another wheel, keyed upon the shaft *f*. It has a proper number of teeth placed in the required situations for working the other wheels for shutting and opening the cocks alternately, as will be hereafter explained. K is a bevel-wheel, keyed also on the shaft *f*, and L is another bevel-wheel working into it, being keyed upon the vertical shaft *g*; this is turned round by the shaft *g*, by means of the cones *i* and *j* and the belt *k*. The whole is put in motion by the pulley *l* and belt *m*, the latter being moved by any suitable means.

The following is the operation of the above-described apparatus:—The cistern G is to be constantly kept full of water by any convenient means for the supply of the boiler by means of the vessel B, which supply is effected in the following manner. When the pulley *l* is put in motion, it causes the wheel J to revolve in the direction shown by the arrow *d* upon it, and the teeth *nnn* and *ooo* act upon the two spur-wheels H and I, which also revolve in the directions shown by the arrows on them, and thereby shut and open the two cocks C C and D D alternately. The drawing shows the cock C C just closed, the teeth *nnn* having just acted on the wheel H (the vessel B being now full of water); the teeth *ooo* act upon the wheel I, and open the cock D D, whereby the water is allowed to descend into the boiler by its superior specific gravity over that of steam, which is admitted above it by pipes *bcc*, the teeth *ooo* are followed by teeth *nnn*, which shut the cock D D; and when that is done, the teeth *ooo* open the cock C C, and allow the vessel B to be again filled with water through pipe F from cistern G; the teeth *nnn* then shut the cock C C, and come again to their situation, as shown in the drawing, ready for repeating the above operation.

It is obvious that, by this routine of opening and shutting the two cocks, an uniform and certain supply of water to steam boilers will be effected; and that such will be the case, no matter how great the pressure at which they are worked; for it is evident that, by means of the pipes *b* and *c*, the pressure in the vessel B will be as great as in the boiler, and that the water will descend as above mentioned from the former to the latter by the supe-

riority of its specific gravity over that of steam. The supply of the requisite quantity of water to the boiler is regulated by the float *p*, which is counterbalanced by the weight *q*, by means of the lever *r* and the rod *s*, the slot *t* in the latter enclosing the belt *k*, which it raises and lowers on the cones *i* and *j*, exactly as the float *p* rises and falls in the boiler. The line *u u* shows the proper height of the water in the boiler, and it is obvious that if the water lowers in it, the float will descend and cause the belt to do the same, and thereby drive the apparatus quicker and increase the supply of water, and that, in the event of the water rising above the water-line, the float will also rise, and thereby reduce such supply.

When the boilers are at rest (as at meal-times, &c.) and are not supplied with water by the above-mentioned apparatus, it is prevented from getting too low in them, whether by leakage or from any other cause, by the following apparatus. F\* and G\* are two pipes, furnished with valves, *e\** and *d\**, properly weighted to connect the cistern with the boiler, and to disconnect them, as hereafter pointed out. F\* opens into and connects the tops of the cistern and the boiler, which are connected and disconnected as required by the valve *e\**; G\* opens into and connects the bottoms of such cistern and boiler, and they are connected and disconnected by the valve *d\**. *e\** is a valve which, when shut, as hereafter mentioned, renders the water-cistern a close vessel; *f* is a rod of iron, on which float D\* is suspended, and which is counterbalanced by lever *g\** and the weight on its other end *k* acting on the pin *i\**, which, when the water in the boiler becomes too low, allows the collar on the rod *f\** to descend through a hole in lever *h\** and deposit the spherical weight *o\** upon it, and thereby close the valve *e\**; when that is done, the float D\*, on still further descending, opens valves *e\** and *d\**, by the pin *i\** in the rod *f\** pressing upon levers *m\** and *n\**, both of which reach to that pin, thus supplying the boiler with water till it becomes of the proper height, when the rising of the float prevents any further supply, by closing the valves *e\** and *d\**, and opening the valve *e\**. The operation of this apparatus is as follows. When the water in the boiler becomes too low, the float D\* descends, and by means of the rod *f\** lowers the spherical weight *o\**, as above stated, upon the lever *h\**, which shuts the valve *e\**, and by means of the pin *i\** acting upon the levers *m\** and *n\** opens the valves *e\** and *d\**, which allow water to descend from cistern G into the boiler.

Fig. 3 is an apparatus for securing the unerring action of safety-valves, and preventing such explosions or accidents from taking place as are owing to the valves not acting freely or being over-weighted. M is a safety-valve on the boiler, opening upwards to prevent the pressure of the steam therein becoming too high, and thereby causing them to burst or explode; N is another safety-valve, opening downwards, to prevent boilers collapsing, by a vacuum being accidentally formed within them. The valve M is fixed on a vertical spindle *u*, on which a spur-wheel O is staked for turning it round; the valve N is also fixed on a vertical spindle *w*, with a spur-wheel P staked upon it, for the same purpose; and there is a deep spur-wheel or pinion Q staked on a spindle *x*, into which these two spur-wheels work, allowing the one to rise and the other to fall for opening the safety-valves upwards and downwards respectively. A worm-wheel R is staked on a shaft *ff*, and a worm S works into the wheel, whereby it is obvious that the valves M and N will by any suitable means be turned very slowly round, and thereby fit very accurately on their seats, without the possibility of their adhesion to them by any cause whatever. The proper pressure downwards on the safety-valve M is regulated by the weights 1, 2, and 3, in addition to the weight of the spindle *u* and the spur-wheel O; and the pressure on the other safety-valve N upwards is regulated by the weight of the ball *a* and the lever *bc*, bearing upon the boss on the spindle *w*. All the weights and levers on these valves are boxed up in a chamber formed by a casing attached to the frame *zzz*, so that no person can have access to them to alter the pressure upon either of them.

COPPER AND TIN MIXTURES.—The best mode of mixing the component metals of this alloy appears to be to melt each separately, and then to add the tin to the copper at the lowest stirring temperature. To complete the combination, the alloy is again melted very gradually by placing the metal in the crucible almost as soon as the fire is lighted. The hardness of this alloy, compared with the extreme softness of the metals, gives us an example of the chemical change effected by their combination. Thus, the speculum metal, as used by Lord Rosse, is totally devoid of malleability, and from its hardness cannot be acted on by the file. His speculum consisted of four atoms of chemical combining proportions of copper to one of tin; or, by weight, 126.4 copper to 58.9 tin. This alloy, which is a true chemical compound, is of a brilliant white lustre, its specific gravity 8.811, nearly as hard as steel, and almost as brittle as sealing-wax. The speculum is 6 ft. in diameter, 5½ in. thick. It was cut open, ground with emery, placed on a table in a cistern filled with water at a temperature of 55° Fahr., polished with red oxide of iron, procured by precipitation from green vitriol, or sulphate of iron, by water of ammonia. —*The Brass and Ironfounders' Practical Guide*.

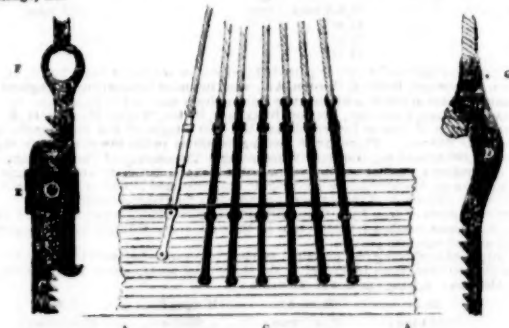
## FLYING ON THE WATER.

PROPOSED EXTRAORDINARY SPEED IN STEAM NAVIGATION.

In the *Mining Journal* of the 11th Sept. last we inserted a notice of a pamphlet by Mr. D. S. Brown, in which he attempted to demonstrate the practicability of so improving the form in the construction of steam-vessels as to enable us to cross the Atlantic in two days, and travel to India and back in a fortnight. In that plan it was proposed to construct the bottom of the vessel in such manner as to form two incline planes, which, when in motion, would have the effect of raising the whole hull to the surface of the water, removing entirely the resistance at the bows, at present the great obstacle to progress. Since then the details of the plan have been much modified, for which a specification of patent was filed on the 2d of April, in which the mode of construction proposed by Mr. Brown is described. Mr. Brown's suggestion is to balance the ship in the water in such manner that her bottom, which should be flat, should form one continuous incline plane from end to end, and when in motion the upper end, or head of the vessel, shall be on a level with the surface of the water, and the stern end slightly depressed and immersed. When in motion, such bottom will encounter an upward pressure, its amount depending upon the velocity and the angle of the plane, independent of the upward pressure obtained by immersion, and which will be able to support the ship nearly on the surface. Further to increase this sustaining power, it is proposed to extend the bottom beyond the sides of the vessel, particularly at the fore-part, which will then also assist in maintaining the ship in the required inclined position by the unequal pressure which it will occasion. Other modifications of the principle of supporting ships on the water by mechanical action are described, and very nice calculations entered into, to show the amount of steam-power necessary to accomplish it. Motion is given by means of one or more pairs of paddles, the floats extending lower than the bottom of the vessel, working in bearings which can be adjusted with facility, to lower the paddles as the ship rises in the water. On explaining the grounds on which the principle is based, the inventor shows that in a sailing vessel a certain depth of hold is necessary to give stability to the ship, and the very resistance of the fluid through which it moves is made subservient to its progress when sailing, at every point excepting in the direction of the wind. A steam-vessel is very different; not being propelled by any external agency, it has to urge itself forward through the water, and in so doing encounters but one constant resistance at the bows, and to diminish which is the chief end of all modern improvements in ship building. From the present form of construction this resistance is much greater than it should be, and increases in a much quicker ratio than the velocity of a ship, being the square of the velocity. When the ship is not in motion, the after-part of the hull is considerably immersed in the water. In a future *Journal* we shall insert drawings, which will better assist in making the principle understood.

## ADJUSTING RIGGING SUPPORTERS.

Capt. Goble has secured by patent the most simple yet secure method of setting up the rigging of vessels we have ever seen. It consists of having the chain-plates secured with another piece of similar design affixed to the ends of the rigging, and when brought together secured by a keeper, or spungarn served round both. By Capt. Goble's invention, the rigging cannot take as many minutes as formerly hours to readjust when required, and is far more neat than the old fashion dead-eyes and its lashings, &c.



- A. Ship's side above and below the bulwarks.
- B. Rigging, or shroud ends, attached.
- C. Chain-plates serrated on the face.
- D. Serrated pieces attached to the shrouds.
- E. Slide or fastener to secure both when taut.
- F. Side section, showing the mode of grip, and impossibility of starting.
- G. Similar section, showing another mode of fixing the ends by a Turk's head, or other knot, at the bottom of the sockets, which can afterwards be served to prevent chafing or rotting, &c.

MANUFACTURE OF AGRICULTURAL IMPLEMENTS BY ROLLING.—By letters patent, granted to H. Winton, of Dove Mills, Birmingham, and F. Parkes, of Sutton, Coldfield Park, county of Warwick, for improvements in the manufacture of agricultural and horticultural forks, and pronged or toothed instruments and hoes, and recently specified, an invention is secured to the above parties under the terms of the new Patent Act, for the improved operation of taking a bar or piece of metal, and passing it, properly heated, through rolls, grooved so as to mark the spaces required between the prongs or tines of the forks or spade for agricultural purposes, thence passing the metal so marked to the slitters, which cut through those spaces, when the fork or spade may be finished off as desired. This process of manufacture is likewise adopted to produce a peculiar description of hoe, which consists of a spring head, being two limbs, as it were, of springy metal with notches, into which wide or narrow blades of hoes may be fitted, and secured by the pressure caused by the elasticity of the metal.

SELF-ACTING LUBRICATOR.—A patent for a very ingenious lubricator for the bearings of machinery has been taken out by Mr. Cosens. It consists of a metallic box, containing a supply of oil, about half filling it, which is elevated by the rotary motion of a wheel dipping into it. The periphery of this wheel comes just in contact with a bent metallic groove, acting as a spoon, down which the oil trickles to the bearings through the orifice of a tube passing through the bottom of the box. In this tube is a regulating screw, by which the quantity of oil can be increased or diminished. By a differential pulley on the wheel shaft the wheel can also be made to go faster or slower, as may be desired. It is extremely economical and simple; no oil is wasted, and the bearings are kept free from grit or dirt.

IMPROVEMENTS IN SHARPENING CARDS IN SHEARING MACHINES.—M. Moreau, of Paris, has taken out a patent, as above, consisting in the construction of an apparatus for sharpening cards and clippers, without taking them down from the cylinders, in their working position, except those clippers which it is sometimes expedient to remove; and also in dressing the cylinders of shearing machines in a more perfect manner than has hitherto been obtained. The apparatus is composed of a cylindrical grit-stone, rotating in a frame set upon a shaft.

IMPROVEMENTS IN PHOTOGRAPHY.—M. de Lucenay, of South-street, Finsbury, has patented a means of producing photographic images by artificial light. The light must be parallel or diffuse, according to the effect desired. It is rendered parallel by placing the light to the focus of a parabolic mirror, or to the principal focus of lenses for silhouettes of a natural size, or negative copies upon grounds of any kind, which are covered with a sensible layer, while for portraits the light is rendered diffuse. Light is produced either by the galvanic battery, or by refractory bodies, heated by flames of oxygen, or by the combustion of artificial compositions. This is a very ingenious invention in photography.

NEW DISINFECTING PROCESS.—A patent has been taken out by Mr. A. Gilbee, of South-street, Finsbury, for an improved mode of disinfecting and converting putrid and fecal matters, applicable to sewers, cesspools, drains, &c. The invention consists in producing a new deodorizing powder, obtained by the combustion of the detritus of forests, lignites, vegetables, marine plants, any ligneous substances, rags, refuse of wool, &c., mixed in suitable proportions with substances which give them the property of absorbing or decomposing others. Under an analysis of the celebrated Messrs. Payen and Peltier, of Paris, the following was the result: Organic substances azotized, 16.44; non-azotized organic substances, 58.06; mineral substances, or clinders, 25.50=100. 2.50 alkaline chlorides and sulphates, a small quantity of carbonate; 14.56 carbonate of lime and magnesia, phosphate of lime, alumina, and of iron; 8.44 argillaceous earth and sand. Another composition gave: Organic substances azotized, 20.41; non-azotized organic substances, 52.26; mineral substances, 27.33=100. 4.78 chlorides, alkaline, and sulphates, a little carbonate; 12.73 carbonate of lime and magnesia, phosphate of lime and oxide of iron; 9.82 argillaceous earth and sand.

SILICATIZATION OF CALCAREOUS SUBSTANCES.—Mr. Fontaine Moreau, of South-street, Finsbury, has patented a new chemical combination for the above purpose, which consists in the application of the soluble silicate of potash to hardening and preserving calcareous stones, by which buildings constructed of such materials acquire an intense hardness, and will admit the most friable stones receiving a fine polish.

PATENT CORK-CUTTING COMPANY.—We noticed some time ago an ingenious machine for cutting corks, which had been invented by a French gentleman. We are glad to see that he has so far perfected the application of it, that some gentlemen of high respectability have formed a company for the purpose of bringing the machine into action, and their prospectus will be found in our present *Journal*. It seems they have adopted this means of working their patent with a view to induce the trade, as well as consumers of corks, to participate in the advantages, and to secure a steady employment for their machines. The basis of their profit is placed upon the facts, which have been fully proved by the promoters, of performing in one hour what manual labour (and that, too, at present unequal to the greatly increased demand for corks) would require in an entire day. This, upon an article of necessity, always likely to be in increasing demand, does appear to afford the strongest argument in their favour. As an enterprise, therefore, likely to give facility to trade, and to benefit a great number of persons, we think it well worthy of attention, and wish every success.







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**MR. G. F. MUNTZ'S (JUN.) PATENT SOLID BRASS TUBES.**  
1144d. 1b. delivered in any part of the United Kingdom.—In introducing these tubes to the notice of engineers and the public, the patentee respectfully directs their attention to some of the advantages which they possess over those previously in use:—

1st. Economy in the first cost.—2d. Greater durability, being made of a mixture of metal hard in its own nature, and not mechanically hardened, as ordinary brass tubes are, which renders them liable to split or burst when subjected to the expansion and contraction caused by the heating and cooling of the boiler.—3d. Equality of hardness throughout, the metal being sufficiently tough to bear expanding, when fixed in the boiler, without softening the ends, which is necessary in fixing the brass tubes previously in use, and which causes the softened parts to wear more.—4th. They are less liable to corrode than any mixture of brass which can be manufactured into tubes by the process previously employed.

G. F. Muntz's Patent Metal Company, French Walls, Birmingham, sole manufacturers.—Agents for London: Charles Moss and Co., 24, Fenchurch-street; Young, Downson, and Co., Limehouse.—Bristol: E. Drew, Clifton Park.—Liverpool: C. Moss and Co., Redcross-street.

**GALVANIZING WORKS.—SKAIFE'S PATENT GALVANIZED IRON** (superior process).—WORKS at the REGENT'S CANAL BASIN, COMMERCIAL ROAD, LIMEHOUSE, LONDON.—J. SKAIFE supplies this metal in every form—viz., SHEETS, PLAIN AND CORRUGATED, of all sizes and gauges; WIRE of every gauge, and WIRE NETTING of all descriptions; GUTTERING; RAIN-WATER, SCREWED GAS AND WATER-PIPES; HOOPING, CASTINGS, FURNACE-PANS, BATHS, BUCKETS, &c., wholesale, retail, and for export. Every description of SHIP'S IRONWORK GALVANIZED; DECK SPIKES, NAILS, &c., always KEPT READY GALVANIZED. Estimates and drawings given for roofs, buildings fixed complete.

J. SKAIFE is also AGENT for MOREWOOD AND ROGERS'S PATENT GALVANIZED TINNED IRON, both flat and corrugated; also, for MOREWOOD AND ROGERS'S PATENT GALVANIZED TINNED IRON TILES, for exportation, and PLUMBIC ZINC. PORTABLE EMIGRANTS' HOUSES and substantial stores supplied at moderate prices, and on the shortest notice. An allowance to the trade.

**IMPROVED STEAM HAMMERS.**—MR. ISHAM BAGGS is now prepared to SUPPLY ironmasters, engineers, manufacturers, and miners, with STEAM HAMMERS and STAMPS of the most IMPROVED CONSTRUCTION, for forging and hammering iron and other metals, driving piles, and stamping and crushing gold quartz, metallic ores, and minerals of every description. By the introduction of a principle recently patented by himself, in conjunction with Mr. Frederick Bramwell, C.E., no less than FIFTY PER CENT. of the STEAM now used is saved, while the blow struck is very much harder than in the engines now in use.

The NEW STEAM-STAMPS, for crushing ore, have been adopted by many of the leading companies and are now at work in various parts of North and South America, Australia, and England. They are eminently adapted for spalling, as well as crushing to fine powder, and they effect an enormous saving in superseeding manual labour. A four-horse steam-stamp complete, with all the latest improvements, £140 (royalty included), for cash; a twenty-horse engine ditto, £250, and other sizes at proportionate rates. Contracts to any extent undertaken.

For further particulars, apply to Mr. Isham Baggs, Mining Journal office, No. 26, Fleet-street, London.

**EXTRACTION OF GOLD AND SILVER FROM THEIR ORES.**  
—The NEW RAPID AMALGAMATOR (BAGGS'S PATENT) requires ONLY HALF the usual amount of MERCURY, and effects an enormous SAVING OF TIME in the process of AMALGAMATION. The NEW MERCURIAL SEPARATOR, secured under the same patent, effects a complete separation of the mercury from the refuse quartz, after the process of amalgamation is complete, in the space of a FEW SECONDS, instead of requiring, as at present, a tedious operation of some TWO HOURS.

In these machines, improved mechanical arrangements are added by the most perfect chemical affinity, and from the principles introduced, it is next to impossible for a particle of gold to escape. The three following companies have already adopted these important improvements:—The Anglo-Californian Gold Mining Company, the Alliance Californian Gold Mining Company, and the Anglo-Australian Gold Mining Company.

For terms of license, and other particulars, apply to Mr. Isham Baggs, Mining Journal office, No. 26, Fleet-street.

**THE NEW STEAM STAMPS, FOR CRUSHING GOLD QUARTZ AND METALLIC ORES.—(BAGGS'S PATENT).**

These powerful MACHINES are now TO BE HAD at a SHORT NOTICE, and of any number of horse-power, from four to twenty.—All communications to be addressed to Mr. Isham Baggs, at the office of the Mining Journal, 26, Fleet-street.

A four-horse steam stamp, complete, £130, royalty included, for cash, and other sizes at proportionate rates.

The following Testimonial of the power and efficacy of these engines is from the manager of one of the smelting establishments in South Wales, where steam stamps, of various powers, under this patent, have been for some time in operation:—

DEAR SIR,.—In reply to your letter of inquiry about the action of your Patent Stamping Machine, I beg to say, that I have now had it fully at work for two months; the quantity of coarse metal it will crush with ease is about 20 tons in 10 hours; about two-thirds is crushed fine, the remainder would require to be stamped a second time, to reduce it to the same fineness. The steam used is very little, and the crushing force very great; large lumps of metal (which is very hard) are immediately broken down.—When I say large, I mean lumps as big as ordinary paving stones. I am now putting up the second machine which you sent me, and have no doubt it will give (as the first has already done) entire satisfaction. I am quite convinced that the principle is excellent, and far superior to any other mode of crushing.

I am, yours, &c., ALFRED TREWMAN.

The patent stamps may be used with atmospheric pressure, through the medium of a water-wheel or other prime mover. The application is extremely simple, very powerful, and where a motive-force is ready at hand, the machines cost less than when steam is employed.

**NOTICE.—TO GOLD COMPANIES, AND THE MINING WORLD GENERALLY.—THE NEW STEAM STAMPS.**—One of these powerful ENGINES HAS JUST BEEN ERECTED, and is NOW SET TO WORK, at Messrs. MEDWIN and HALL'S, Engineers and Portable Engine Makers, No. 92, BLACKFRIARS ROAD, where it may be seen in operation daily, and its powers subjected to any required test. These stamps, after the most careful inspection, have already been adopted by the following companies:—

THE ENGLISH AND AUSTRALIAN COPPER COMPANY.  
THE ANGLO-CALIFORNIA GOLD MINING COMPANY.  
THE ALLIANCE GOLD MINING COMPANY.  
THE ANGLO-AUSTRALIAN GOLD MINING COMPANY.  
THE MEXICAN AND SOUTH AMERICAN MINING COMPANY.  
THE ST. JOHN DEL REY (Gold, Brazil).  
THE LINARES LEAD MINING ASSOCIATION (Spain).  
THE LONDON AND CALIFORNIA GOLD QUARTZ CRUSHING COMPANY.

And they are about being adopted by several other companies and private individuals, who have carefully tried the results of their crushing powers, and submitted their capabilities to the most severe tests. In proof of the utility of these engines, it may be observed, that the saving in manual labour which they will effect to one company alone (the St. John del Rey) will amount to many thousand pounds sterling per annum.—For cards to view the engine at Messrs. Medwin and Hall's, apply, by letter, to Mr. Isham Baggs, Mining Journal office, 26, Fleet-street, London, where any further particulars may be obtained on application.

**THE WASHINGTON CHEMICAL COMPANY, NEWCASTLE-ON-TYNE;**

**PATTINSON'S OXICHLORIDE OF LEAD.**—THE WASHINGTON CHEMICAL COMPANY, having, during the last year, ESTABLISHED A MANUFACTORY OF PATTINSON'S OXICHLORIDE OF LEAD on a large scale, and being able to supply it with regularity, and to execute ORDERS without DELAY, now proceed to bring this new and valuable preparation of lead before their friends and the public, quite sure that it will not, in the present age, be considered because it is new, and by it judged by its merits, it must make its way, and finally take its place as one of the important manufactures of this country.

PATTINSON'S OXICHLORIDE OF LEAD is a chemical combination of one equivalent of chloride of lead and one equivalent of oxide of lead; it being well known that common white lead is a chemical combination of one equivalent of oxide of lead and one equivalent (or thereabouts) of carbonic acid, constituting what is called in chemical language, carbonate of lead. Now, there is no reason to conclude that carbonate of lead is the only compound of lead valuable as a paint, and still less that it should be the best compound of lead for that purpose. In point of fact it is not so, for the newly-discovered oxichloride in most, if not in all respects, is far superior; its colour is brilliantly white, and in a number of cases it has been tried against the best white lead that could be obtained, and after a period of upwards of two years, it has been found to retain its white colour considerably better than the lead against which it was tried. But the chief and by far the most important advantage it possesses is its remarkable and very decided superiority of body, by which term the power of covering surface well and extensively is understood among painters. The attention of the discoverer was at a very early period drawn to this circumstance, and since that time the Washington Chemical Company have had abundant opportunities of placing its superiority in this important particular beyond all doubt. They have themselves performed a number of experiments, and have also caused a number of experiments to be performed, in the large way, by various practical men, to ascertain accurately its covering power as compared with the best white lead, and they now state the proportions to be as 60 to 100—that is, 60 lbs. of oxichloride paint will cover as much surface as 100 lbs. of the best white lead, the saving of cost being in the same proportion; besides this, the coating is thicker and more protective, both in and out of doors, as the oxichloride dries into a hard tenacious layer, more like an enamel than paint. In using the oxichloride, no difference in the materials with which it is mixed is required, oil and turpentine being employed as usual both for work technically called fattening and for work intended to be varnished. For the use of paper stainers and leather dressers, the oxichloride is found to be peculiarly suitable. The Washington Chemical Company strongly recommend this newly-discovered substance to the notice of consumers, both on account of its economy and its intrinsic good qualities as a paint.

AGENTS.

LONDON.—Mr. Richard Cooke, 7, St. Eusebio-street.

LIVERPOOL.—Messrs. Blundell, Spence, and Co., 9, Upper Thames-street.

MANCHESTER.—Messrs. Johnson and McGowan.

LEEDS.—Messrs. T. and E. G. Jepson.

SUNDERLAND.—Mr. John Young.

DEVONSHIRE AND CORNWALL.—Mr. Richd. Penrose, Tavistock & Plymouth.

EDINBURGH AND EAST COAST OF SCOTLAND.—Mr. William Bailey, jun., Greenleap-place, Edinburgh.

GLASGOW AND WEST COAST OF SCOTLAND.—Mr. John Hinchaw, Glasgow.

DUBLIN AND SOUTH OF IRELAND.—Mr. P. Linskey, No. 91 Middle Abbey-street, Dublin.

BELFAST.—Messrs. William Stevenson, jun., and Co.

**NEW PATENT ACT, 1852.—MR. CAMPIN, having advocated**

Patent Law Reform before the Government and Legislature, and in the pages of the Mining Journal, &c., is now READY TO ADVISE AND ASSIST INVENTORS

IN OBTAINING PATENTS, &c., under the NEW ACT.

The Circular of Information, gratis, on application to the Patent Office and the

Register, 156, Strand.

## THE PENINSULAR AND ORIENTAL STEAM NAVIGATION COMPANY.

NEW ARRANGEMENTS, AND REDUCED FARES AND FREIGHTS.  
DEPARTURES OUTWARDS.

**INDIA AND CHINA, VIA EGYPT.**—For Aden, Ceylon, Madras, Calcutta, Penang, Singapore, and Hong Kong, on the 4th and 20th of every month from Southampton; and on the 10th and 26th from Marseilles.

**AUSTRALIA VIA SINGAPORE.**—For Adelaide, Port Phillip, and Sydney (touching at Batavia), on the 4th July, and 4th of every alternate month thereafter from Southampton, and on the 10th of July, and 10th of every alternate month thereafter from Marseilles.

**MALTA AND EGYPT.**—On the 4th and 20th of every month from Southampton; and the 10th and 26th from Marseilles.

**MALTA AND CONSTANTINOPLE.**—On the 27th of every month from Southampton.

**SPAIN AND PORTUGAL.**—For Vigo, Oporto, Lisbon, Cadiz, and Gibraltar, from Southampton, on the 7th, 17th, and 27th of every month.

**CALCUTTA AND CHINA.**—Vessels of the Company ply occasionally (generally once a month) between Calcutta, Penang, Singapore, Hong Kong, and Shanghai.

N.B.—The rates of passage money and freight on the India and China lines have been considerably reduced, and may be had upon application at the Company's offices, 122, Leadenhall-street, London, and Oriental-place, Southampton.

**IRON SHIP BUILDING.**—The great impetus given to Iron Ship Building since the important discovery of a SUCCESSFUL ANTIDOTE AGAINST FOULING IN LONG SEA VOYAGES, has induced the inventors, Messrs. PEACOCK and BUCHAN, of SOUTHAMPTON, to lay before the public a FEW ADDITIONAL TESTIMONIALS as to its unrivalled success during the last twelve months, feeling it unnecessary to publish all the satisfactory letters and documents received from time to time from highly respectable parties, in the form of an advertisement, but copies of which can be seen on application at the offices of their agents in all the principal ports of the United Kingdom and the Continent; and the inventors beg to call the attention of IRON SHIP BUILDERS, the DIRECTORS of GREAT STEAM COMPANIES, and SHIPOWNERS in general, to the subject, in order that the FREQUENT long existing against iron ships may be ENTIRELY REMOVED.

The return of the *Queen of the South, Harbinger, and Lady Jocelyn*, from an Indian voyage, PERFECTLY CLEAN, has solved a great problem in the application of iron to the manufacture of ships intended for long sea voyages.—Vide Bourne's *Treatise on the Screw Propeller*, Appendix, pp. xxxiv., xxxv., and xxxvi.

An iron ship receiving two coats of No. 2 Composition before leaving England, which can be applied within three days, in the manner of ordinary painting, and taking with her a small quantity hermetically sealed in an iron cask, for re-touching between wind and water on arrival out, and occasionally whilst coaling, where it may be rubbed off by lighters, &c., will make the voyage to INDIA, AUSTRALIA, or CALIFORNIA, WITHOUT THE NECESSITY OF DOCKING IN THE COUNTRY; and this composition not having the LEAST PARTICLE OF COPPER IN IT, no galvanic action, to the prejudice of the iron, can possibly take place.

Messrs. PEACOCK and BUCHAN would also beg to call the attention of shipowners to the value of their No. 1 Composition, for single bottoms and sheathing, either of COPPER, YELLOW METAL, or ZINC, particularly since the late extraordinary rise in the price of copper.

In applying the No. 1, it is important that the SURFACE SHOULD BE DRY, and that the sheets of copper or yellow metal should be RUBBED DOWN WITH SPIRITS OF TURPENTINE TO REMOVE THE PELICLE OF ATMOSPHERIC OXIDATION, AND PREVENT THE WASTING OFF OF THE COMPOSITION.

The composition is about the same as that of red lead, taking the difference of quantities required for coating with one and the other.

The following are amongst other testimonials recently received:—

**IRON SHIPS.**

"Messrs. PEACOCK and BUCHAN, Southampton.—Having from time to time, during a period of twelve months, and in every trial of your composition for preventing oxidation and foulness on the bottoms of iron ships, upon several of the iron ships belonging to this Company, in competition with ALL OTHER KNOWN COMPOSITIONS brought out for this object, I am enabled to state that yours has proved decidedly the best, and the Company have, therefore, adopted it. We were in the habit of docking our Cape steamers every voyage to clean and re-coat, but since using your composition, these ships can well perform two voyages without fouling. The state of the bottom of the *Queen of the South* on her return from an Indian voyage, after a period of six months, and upwards of six months without examination, was most satisfactory; and which is proved by the fact of this vessel having run 310 knots during the last 24 hours of her passage home under full sail. Wishing you much success in the general application of your useful invention, I am, &c.,

"General Screw Steam Shipping Company, 2, Royal Exchange-buildings, London, Dec. 28, 1852."

**ON COPPER SHEATHING.**

"Messrs. PEACOCK and BUCHAN.—We have made use of your Composition Paint for some time, and find it very serviceable, and well adapted for the purpose required. Your's, faithfully, GEO. and J. INMAN, Yacht Builders."

"Lymington, Nov. 4, 1852."

**ON ZINC SHEATHING.**

"Messrs. PEACOCK and BUCHAN, Southampton.—I have much pleasure in adding my testimony to the value of your Paint for Ships' Bottoms. The *C. T. Sutton*, under my command, was sheathed with Vielle Montagne zinc in June, and immediately after with your Composition Paint, and on my return from Newfoundland last week I find the SHEATHING PERFECTLY CLEAN, AND FREE FROM BARNACLES AND WORMS, except in a few spots where the paint had been rubbed off; this more distinctly, I think, shows its value as a preservative against fouling. If we had had two coats, as was suggested, the success would have been more complete. I saw Messrs. Le Boulle's schooner, the *Adeline*, Capt. Pallot, in Gaspe, before she sailed for the Straits, and HER APPEARANCE WAS EVEN MORE SATISFACTORY than that of the *C. T. Sutton*; she was sheathed and painted in May. I beg to add that my confidence in this material is unbounded. I am, Gentlemen, your obedient servant,

"Jersey, Dec. 17, 1852."

"Messrs. PEACOCK and BUCHAN beg further to state, that their compositions are now ADAPTED by the following important Steam Navigation Companies:—

THE PENINSULAR AND ORIENTAL STEAM NAVIGATION COMPANY.  
THE ROYAL MAIL STEAM PACKET COMPANY.  
THE PACIFIC STEAM NAVIGATION COMPANY.  
THE GENERAL SCREW STEAM SHIPPING COMPANY.  
THE AUSTRIAN LLOYD'S.  
THE AUSTRALIAN ROYAL MAIL STEAM COMPANY.  
THE ABERDEEN AND CLYDE STEAM COMPANY.  
THE AFRICAN STEAM NAVIGATION COMPANY.  
THE SPANISH STEAM NAVIGATION COMPANY.  
THE NORTH OF EUROPE STEAM NAVIGATION COMPANY.  
THE NETHERLAND STEAM-BEAT COMPANY.

And by numerous shipbuilders and owners in the United Kingdom. In order to ensure a PURE, GENUINE, and UNADULTERATED ARTICLE (evidence having been given to Messrs. Peacock and Buchanan of parties mixing other compounds with their composition), the public are requested to apply to the inventors, at their manufactory, Southampton, or to their AUTHORIZED AGENT, Mrs. TAYLOR, No. 104, MINORIES, LONDON.

## PATENT SMOKELESS FURNACES.

Patent Hot-water Apparatus Manufactory, 6, Francis-street, Regent-square, London, May 9, 1853.

SIR,—At the request of J. B. Banning, Esq., the City architect, and for the information of the City of London Markets Committee, I examined your patent furnaces on the 24th March, then and for some time in daily operation at Northampton; and I have this day witnessed the working of others fitted up by you in London. Although the furnaces, as they appear in appearance and trifling in quantity, necessarily escapes when the furnace is in operation, your composition, by its nature, effectually prevents the formation of any dense or opaque smoke, and thus unquestionably brings its use within the requirements of the Act of Parliament. And upon the information of the proprietors and engineers at the respective works, both in London and Northampton, I can have no hesitation in assuming that the saving in fuel, from the more perfect combustion produced by the use of your plan, averages 20 per cent. in all the cases I have witnessed. The simplicity, cheapness, and applicability of your invention to furnaces of all kinds, must greatly add to its commercial value.

I am, Sir, your obedient servant, A. M. PERKINS, Engineer.

J. Lee Stevens, Esq., 63, King William-street, City.

DEAR SIR,—After about six months' trial of your patent furnace, I am happy to verify the report I gave of its manifold advantages in January last. My boiler continues to generate steam in the most satisfactory manner, the action of the fire is perfectly uniform, the smoke nuisance is effectually prevented, and the saving of fuel still averages 20 per cent. I have not incurred any expense whatever for repairs, and the peculiar simplicity of your invention, and cheapness of construction, besides its other merits, I feel convinced will establish its universal use, both for land and marine purposes.

J. Lee Stevens, Esq., Patent Smokeless Furnace Office, 63, King William-street, City, London.

P.S. The furnace I put up for Messrs. Ward and Co., at the Grand Junction Wharf, about a month since, is doing quite as well as my own.

Ironworks, 9, Osborn-street, Whitechapel, April 18, 1853.

SIR,—Your patented improvement applied to our case premises, have succeeded beyond expectation. Instead of the thick black smoke we had before, almost continually pouring out, we have now for a moment only, whilst fuel is putting on, a little brownish vapour visible, although the perfect operation of your system is checked by the excessive size of our shaft. Of course the saving in coals, from thorough combustion and more uniform heat, is in due proportion, and we think may be fairly taken at 20 per cent. So satisfied are we with the result, that we shall immediately apply the principle, under your superintendence, to the boiler of our Steamware Pipe Manufactory, Brunton's Wharf, Limehouse. And, as engineers and founders, we are happy to recommend your invention to our friends, and to undertake for them the improvement of old or the construction of new furnaces, upon your undoubtedly effective system.

S. and W. STANDING, Engineer, &c.

John Lee Stevens, Esq., 63, King William-street, City.

Information respecting LICENSES TO MANUFACTURE OR USE THE PATENT SMOKELESS FURNACES is given by Mr. John Lee Stevens, the patentee, at the offices, 63, King William-street, City, London, where drawings, testimonials, &c., may be seen, and references obtained to several highly respectable firms in London and elsewhere, upon whose premises the Patent Smokeless Furnaces are in daily operation.

**CAST-STEEL BORERS.**—J. T. TREGELLAS is now open to EXECUTE FURTHER ORDERS for the above INVALUABLE ARTICLES with all possible dispatch. The quality of every borer (and every bar of steel from which they are made) is warranted, and the prices thereof do not exceed the lowest prices offered by other houses.—N.B. Be careful to state the nature of the rock to be bored.

J. T. TREGELLAS has also received an appointment for the SALE of that valuable article, the REFINED TALLOW OIL, for lubricating steam-engines and other delicate machinery, the use of which insures a considerable saving in expense, and from its great purity (being as transparent as water) preventing all corrosion and dirt.

80, Lemon-street, Truro, June 7, 1853.

## KUPER'S PATENT WIRE ROPES.

**MR. HENRY J. MORTON, GALVANIZED AND CORRUGATED IRON ROOFING AND STRAND FENCING WORKS, 9½, ALBION STREET, LEEDS.** SOLE AGENT FOR KUPER'S PATENT WIRE ROPES, for mines, railways, inclines, &c. These ropes are now most extensively used throughout the whole of the mining districts of this kingdom; and reference can be given to the largest proprietors, as to their superiority over all other ropes. These ropes are made by improved machinery. All ropes sent CARRIAGE PAID.

**PATENT GALVANIZED TWISTED SIGNAL CORD,** for the use of mines, railways, &c., WILL NOT RUST OR CORRODE.



For mines they are very well adapted, as they will not rust or corrode, and are exceedingly strong. Prices, 15s., 18s., 10s. 6d., & 21s. per 100 yds., according to strength. PATENT HAIR ROLLER FELT, for saving fuel, and ASPHALTED ROOFING FELT, 10d. per foot, supplied.

Apply for prices, &c., at the manufactory, 9½, Albion-street, Leeds.

## GALVANIZED IRON ROOFS, AND WIRE STRAND FENCING.

**MR. HENRY J. MORTON, GALVANIZED AND CORRUGATED IRON ROOFING WORKS, No. 9½, ALBION STREET, LEEDS,** the ORIGINAL MANUFACTURER OF THE PATENT STRAND FENCING, formed of twisted wires, for parks, pleasure grounds, railways, inclosures, &c. Upwards of 600 miles have been fixed in this country, and it is admitted to be the most efficient fence in use. Price from 1s. 4d. to 3s. per yard, fixed, according to the kind of fence.

IRON HURDLES, GATES, & solid WIRE FENCING, manufactured at low prices.

GALVANIZED GAME NETTING, very strong and neat, and NEVER REQUIRING PAINTING, 2 ft. wide, and 2 in. mesh, 7d., 9½d., and 1s. 0½d. per yard.

GALVANIZED IRON GUTTERS, never want painting, 9d., 1s., & 1s. 4d. per yd.

GALVANIZED IRON ROOFING, for farm buildings, mills, sheds, &c.

ASPHALTED ROOFING FELTS, 1d. per square foot.

ASPHALTED SIGNAL CORD, formed as a twisted cord or rope, for mines, from 15s. per 100 yards.

For prices, drawings, and estimates, apply at the manufactory, 9½, Albion-street, Leeds. Sole Agent for the Fire Annihilator Machines, and Kuper's Improved Patent Wire Ropes.

## ASSAYING.—CITY SCHOOL OF CHEMISTRY AND ASSAY OFFICE, DUNNING'S ALLEY, BISHOPSGATE STREET WITHOUT.

Conducted by JOHN MITCHELL, F.C.S., Author of Manual of Practical Assaying, Manual of Agricultural Analysis, Treatise on the Adulteration of Food, Metallurgical Papers, &c. ASSAYS AND ANALYSES OF MINERALS, METALS, and every manufacturing product.

SPECIAL INSTRUCTION IN ASSAYING AND CHEMISTRY for gentlemen intending to proceed to the colonies.

All enquiries respecting scale of fees, &c., to be addressed as above.

## AMERICA IN FORTY-EIGHT HOURS!—INDIA AND BACK

IN A FORTNIGHT!—Being SUGGESTIONS for certain IMPROVEMENTS in the CONSTRUCTION OF STEAM-VESSELS, in which the practicability of mechanical flying is clearly demonstrated, as evinced in the animal creation, as well as by the deductions of science. By D. S. BAOW. Third edition, price Sixpence.

Saunders and Stanford, 6, Charing-cross.

## THE PATENTEE'S MANUAL; being a Treatise on the Law

and Practice of Letters Patent; especially intended for the use of Patentees and Inventors. By JAMES JOHNSON, Esq., Middle Temple, and J. HENRY JOHNSON, Solicitor, and Patent Agent, Lincoln's Inn-fields and Glasgow.

CONTENTS.—The Subject Matter and Nature of Patentable Inventions, and of the Incidents which must accompany it. Who may be a Patentee?—The duration and Extent of Letters Patent.—The Title.—The Specification.—Disclaimers and Alterations.—Assignments and Licenses.—Infringements.

The Appendix contains the Statutes, Forms of Proceedings, and the Official Rules and Regulations under the Patent Law Amendment Act, 1852, with a copious Index, enabling the reader at a glance to ascertain the exact information required.

London: Longman, Brown, Green, and Longmans.

## CLERICAL, MEDICAL, AND GENERAL LIFE ASSURANCE SOCIETY.

Established 1824. Empowered by Special Act of Parliament.

**ADVANTAGES.**

**EXTENSION OF LIMITS OF RESIDENCE.**—The assured can reside in any part of Europe, the Holy Land, Egypt, Madeira, the Cape, Australia, New Zealand, and in most parts of North and South America, without extra charge.

**MUTUAL SYSTEM WITHOUT THE RISK OF PARTNERSHIP.**

The small share of profit divisible in future among the shareholders being now provided for, the assured will hereafter derive all the benefits obtainable from a Mutual Office, with, at the same time, complete freedom from liability.—Thus combining in the same office all the advantages of both systems. The Assurance Fund already invested amounts to £250,000, and the income exceeds £136,000 per annum.

**CREDIT SYSTEM.**—On policies for the whole of life, one-half of the annual premiums for the first five years may remain on credit, and may either continue as a debt on the policy, or may be paid off at any time.

**LOANS.**—Loans are advanced on policies which have been in existence five years and upwards, to the extent of nine-tenths of their value.

**BONUSES.**—FIVE BONUSES have been declared; at the last, in January, 1852, the sum of £131,125 was added to the policies, producing a bonus, varying with the different ages, from 24½ to 55 per cent. on the premiums paid during the five years, or from 45 to £12 10s. per cent. on the sums assured.

**PARTICIPATION IN PROFITS.**—Policies participate in the profits, in proportion to the number and amount of the premiums paid between every division, so that if only one year's premium be received prior to the books being closed for any division, the policy on which it was paid will obtain its due share. The books close for the next division on 30th June, 1856, therefore those who effect policies before the 30th June next will be entitled to one year's additional share of profits over later assurers.

**APPLICATION OF BONUSES.**—The next and future bonuses may be either received in cash, or applied, at the option of the assured, in any other way.

**NON-PARTICIPATION IN PROFITS.**—Assurances may be effected for a fixed sum at considerably reduced rates, and the premiums for term policies are lower than at most other safe offices.

**PROMPT SETTLEMENT OF CLAIMS.**—Claims paid 30 days after proof of death, and all policies are indisputable, except in cases of fraud.

**INVALID LIVES** may be assured at rates proportioned to the increased risk.

**POLICIES** are granted on the lives of persons in any station, and of every age, and for any sum on one life, from £50 to £10,000.

**PREMIUMS** may be paid yearly, half-yearly, or quarterly, and if the payment of any premium be omitted from any cause, the policy can be revived within 14 months.

The accounts and balance-sheets are at all times open to the inspection of the assured, or of persons desirous to assure.



## THE MINING SHARE LIST.

Shares.	Mines.	Paid.	Last Price.	Present.	Dividends per Share.	Last Paid.
8120	Alfred Consols (copper), Phillack	£2 10s	£10 10s	10 10s	£7 2 0	£0 13 0—May, 1853.
2120	Anglesia Coal Company	4	4	4	0 10 0	0 2 0—Nov., 1852.
824	Baleswidden (tin), St. Just	11 1/2	10 1/2	10 1/2	11 10 0	0 10 0—May, 1853.
8000	Bat Holes, Worthy, Salop	17 13s. 6d.	35	35	0 10 0	0 10 0—April, 1853.
4000	Bedford United (copper), Tavistock	2 1/2	7 1/2	6 1/2	4 14 6	0 7 6—April, 1853.
5000	Black Craig (lead), Kirkcubrightshire	5	5	5	0 2 6	0 2 6—Nov., 1849.
44	Boswell Downs (tin), St. Just	—	125	—	750 0 0	—
124	Boswell and Wheel Castle	—	405	400	247 15 0	5 0 0—April, 1853.
230	Boswell (tin), St. Just	91 1/2	7 1/2	7 1/2	0 5 0	0 5 0—June, 1851.
1000	Bryntail, Llanidloes, Montgomeryshire	7 1/2	3 1/2	3 1/2	1 8 0	0 4 0—Sept., 1847.
5000	Callington (lead, copper), Callington	7 1/2	8 1/2	8 1/2	210 10 0	2 0 0—April, 1853.
1000	Carn Brea (copper, tin), Illogan	12	35	35	—	—
125	Carnfryn (copper), Gwynnapp, Cornwall	75	35	35	—	—
250	Candour (copper, tin), Camborne	20	120	120	31 0 0	3 0 0—April, 1853.
2510	Cook's Kitchen (copper, tin), Illogan	15 1/2	2 1/2	2 1/2	—	—
125	Cwmystwith (lead), Cardiganshire	60	210	190	15 0 0	5 0 0—Dec., 1852.
1024	Devon Great Consols (copper), Tavistock	1	375	280 365	331 0 0	15 0 0—May, 1853.
20000	Dunroed (copper), Ireland	1	—	—	0 1 0	0 1 0—May, 1853.
67	Dunglo (tin), Gwilt	3	9	9	—	—
179	Dolcoath (copper, tin), Camborne	257 1/2	90	90	630 4 0	3 10 0—April, 1853.
13800	Drake Wells (tin), Cornwall	17 9s.	2 1/2	2 1/2	0 6 6	0 1 6—April, 1853.
300	East Durren (lead), Cardiganshire	23	110	100 105	4 0 0	2 0 0—Jan., 1853.
125	East Pool (tin, copper), Pool, Illogan	24 1/2	150	150	233 0 0	—
94	East Wheel Croft (copper), Illogan	125	67 1/2	67 1/2	240 0 0	—
125	East Wheel Rose (silver-lead), Newlyn	50	185	180	2245 0 0	10 0 0—March, 1852.
494	Fowey Consols (copper), Twardreath	40	30	30	—	—
3715	General Mining Co. for Ireland (cop. lead)	1 1/2	6 1/2	6 1/2	0 19 1	0 1 8—June, 1853.
1000	Goginan (lead), Cardiganshire, Wales	8	20	20	44 0 0	—
1000	(New) ditto ditto	6	18	18	—	—
1024	Gonamen (copper), St. Cleer	12 1/2	9	9	0 7 6	0 7 6—Dec., 1852.
96	Great Consols (copper), Gwynnapp	1000	200	200	353 6 8	—
50000	Great Onslow Consols, Camborne	1 1/2	—	—	0 2 0	0 2 0—June, 1852.
13750	Great Polgoth (tin), St. Austell	100	5 1/2	2 1/2	0 10 0	0 1 0—May, 1853.
119	Great Work (tin), Gernoe	100	15 1/2	15 1/2	161 10 0	—
1024	Herodfoot (lead), near Liskeard	25	14	14	0 7 6	0 2 6—Aug., 1851.
1000	Holmhead (lead, copper), Callington	25	21	21	25 0 0	—
2900	Holyford (copper), near Tipperary	11	7	7	3 5 0	0 5 0—Sept., 1852.
76	Jamaica (lead), Mold, Flintshire	37 13s. 6d.	20	20	224 0 0	—
784	Kirkcubrightshire (lead), Kirkcubright	—	4 1/2	4 1/2	1 0 0	0 5 0—March, 1853.
20	Laxey Mining Company, Isle of Man	50	1200	—	2 0 0	0 10 0—Aug., 1851.
1000	Lewis (tin, copper), St. Erth	17	155	155	1038 0 0	2 0 0—April, 1853.
160	Liburne (lead), Cardiganshire, Wales	75	1000	900	745 0 0	45 0 0—Dec., 1852.
6000	Marke Valley (copper), Cardigan	47 10s. 6d.	5	5	0 2 6	0 2 6—May, 1853.
5000	Mendip Hills (lead), Somerset	7	7 1/2	7 1/2	0 10 0	0 10 0—May, 1853.
5000	Merrilyn (lead), Flint	2 1/2	4	4	1 8 6	0 2 6—April, 1853.
5000	Milwr (lead), Flintshire	3	3 1/2	3 1/2	0 4 0	0 4 0—Oct., 1851.
30000	Minning Co. of Ireland (copper, lead, coal)	7	15	17 1/2	8 1 0	0 7 0—Dec., 1852.
5000	Nantlle Vale (slate), Llanfyllin	1	1 1/2	1 1/2	0 1 3	0 1 3—May, 1853.
470	Newtons Mining Company, Co. Down	50	70	70	—	—
200	North Pool (copper, tin), Pool	22 1/2	250	240	280 10 0	10 0 0—May, 1853.
140	North Rosker (copper), Camborne	10	180	150	245 0 0	0 10 0—March, 1853.
6000	North Wheel Basset (copper, tin), Illogan	10 1/2	10 1/2	10 1/2	1 16 0	0 5 0—May, 1853.
6400	Par Consols (copper), St. Blazey	1 1/2	15	17 1/2	22 10 0	0 15 0—March, 1853.
500	Peat United (lead), North Derbyshire	21 1/2	40	40	1 15 0	0 10 0—June, 1853.
1160	Perran St. George (cop. tin), Perranabuloe	30	750	750	240 0 0	10 0 0—Dec., 1852.
200	Phoenix (copper, tin), Llanfyllin	30	750	750	4 5 0	1 0 0—Dec., 1852.
1000	Pilberron (tin), St. Agnes	15	35	35	20 4 0	0 15 0—May, 1853.
500	Providence Mines (tin), Uny Lelant	20 1/2	35	35	0 8 0	0 4 0—Jan., 1853.
1948	Rix Hill (tin), Tavistock	3 1/2	2 1/2	2 1/2	0 2 2	0 2 2—July, 1852.
25200	Rorington (lead), Shalbeach, Shrewsbury	1	1 1/2	1 1/2	0 2 2	0 2 2—July, 1852.
256	South Cardigan (copper), St. Cleer	2 1/2	200	205	275 10 0	4 0 0—May, 1853.
9000	South Tamar (silver-lead), Beerris	15	7	7	9 15 0	0 3 0—Feb., 1853.
256	South Tolar (copper), Redruth, Cornwall	16	190	185	69 0 0	4 0 0—May, 1853.
245	South Wheel Frances (copper), Illogan	37 1/2	185	185	223 5 0	5 10 0—May, 1853.
1024	Spearhead Consols (tin), St. Just, Cornwall	1 1/2	10 1/2	10 1/2	8 1 0	0 7 6—April, 1853.
1024	St. Anbra and Grylls (copper, tin), Breage	80	125	125	880 0 0	5 0 0—Feb., 1853.
84	St. Ives Consols (tin), St. Ives	10	10	10	12 10 0	—
10000	St. Mary and Camborne Vein (copper)	10 1/2	10	10	—	—
9000	Tamar Consols (silver-lead), Beerris	4 1/2	3 1/2	3 1/2	4 11 0	2 0 0—Feb., 1853.
4000	Tincroft (copper, tin), near Pool, Illogan	7	11	11	6 18 6	0 10 0—Feb., 1853.
512	Treban (silver-lead), Menheniot	2 1/2	25	24 25	16 12 6	1 0 0—May, 1853.
5000	Trevelin Consols (copper), Redruth	6	2	2	1 3 0	0 5 0—Oct., 1847.
572	Trevelin Consols (tin), St. Ives	6 1/2	27	27	0 15 0	0 15 0—May, 1853.
95	Trevelin (copper), Gwynnapp, Cornwall	32 1/2	200	200	480 15 0	—
120	Trevelin (copper), Gwynnapp, Cornwall	5	14	13 17 1/2	402 10 0	—
120	Trevelin and Barriar (copper), Gwynnapp	130	90	80	255 10 0	2 10 0—Jan., 1853.
100	Trumpet Consols (tin), near Helston	95	112	112	36 0 0	5 0 0—March, 1853.
400	United Mines (copper), Gwynnapp	40	320	310	31 5 0	7 10 0—April, 1853.
1024	Wellington (copper, tin), Perranabuloe	8 1/2	7 1/2	7 1/2	2 2 6	0 5 0—March, 1853.
256	West Cardigan (copper), Liskeard	20	285	250	216 0 0	10 0 0—May, 1853.
1024	West Providence (tin), St. Erth	10 1/2	32 1/2	32 1/2	50 52	2 10 0—March, 1853.
1024	West Valley (copper), Illogan	10 1/2	10 1/2	10 1/2	0 10 0	0 10 0—May, 1853.
256	Wheel Basset (copper), Illogan	10 1/2	325	350 600	410 0 0	20 0 0—June, 1853.
256	Wheel Brewer (copper), Gwynnapp	4	22	22	5 0 0	—
256	Wheel Buller (copper), Redruth	5	1050	1050	282 10 0	40 0 0—May, 1853.
250	Wheel Clifford (copper), Gwynnapp	—	150	—	3 13 8	—
4280	Wheel Exmouth and Adams United	4 1/2	7 1/2	7 1/2	0 7 6	0 2 6—Dec., 1852.
100	Wheel Friendly (tin), St. Agnes	70	10	10	5 0 0	0 5 0—May, 1853.
125	Wheel Friendship (copper), Devon	120	165	165	2380 10 0	10 0 0—May, 1853.
1000	Wheel Golden (sl. lead), Perranabuloe	3	3 1/2	3 1/2	0 2 0	0 2 0—May, 1853.
6000	Wheel James (iron, copper), Roche	10 1/2	17	17	2 10 0	1 10 0—Feb., 1853.
512	Wheel Jane (silver-lead), Ken	33	44 1/2	44 1/2	17 10 0	2 10 0—Oct., 1852.
430	Wheel Lavel (tin), Wendron	117	79	79	196 0 0	2 10 0—May, 1852.
512	Wheel Margaret (tin), Uny Lelant	3 1/2	45	42	23 5 0	1 0 0—Sept., 1852.
80	Wheel Mary Ann (lead), Menheniot	70	300	300	97 13 0	12 10 0—May, 1853.
6400	Wheel Orles, St. Just, Cornwall	70	40	40	0 10 0	0 10 0—March, 1853.
240	Wheel Procter (lead & antimony), St. Kew	1	1 1/2	1 1/2	0 10 0	0 10 0—Sept., 1852.
138	Wheel Reeth (tin), Uny Lelant	20 1/2	50	50	237 10 0	4 0 0—Dec., 1852.
138	Wheel Seton (tin, copper), Camborne	10 1/2	27	27	32 10 0	3 0 0—April, 1853.
1024	Wheel Tremayne (tin, copper), Gwinnear	9 1/2	20	18 20	9 15 0	0 10 0—April, 1853.
3000	Wicklow (copper), Wicklow	5	65	60	19 18 0	1 5 0—Feb., 1853.

## FOREIGN MINES.

Shares.	Mines.	Paid.	Last Price.	Present.	Dividends per Share.	Last Paid.
5000	Altan Mining Company (copper), Norway	£14 1/2	7 1/2	7 1/2	3 10 0	0 10 0—Dec., 1852.
72000	Baden, Grand Duchy of	1	5	5 1/2	0 0 0	0 1 0—Nov., 1852.
10000	Brazilian Imperial (gold), Brazil	25	15	15	34 17 6	—
4500	Burra Bore (copper), South Australia	5	158	150	0 0 0	5 0 0—Dec., 1852.
12000	Cobre Copper Company (copper), Cuba	40	47	47 1/2	56 12 0	3 0 0—Jan., 1853.
10000	Copio Mining Company (copper), Chili	15	11 1/2	11 1/2	3 18 0	0 5 0—Oct., 1851.
20000	General Min. Assoc. (iron, coal), Nova Scotia	20	16 1/2	16	7 10 0	0 5 0—June, 1852.
10000	Linares (lead), Pico Ancho, Spain	3	6	9 1/2	0 13 0	0 10 0—April, 1853.
2700	Marmato (gold), Colombia	2 1/2	12	12	4 0 0	1 0 0—Nov., 1852.
150000	Marquitta and New Granada	1	1	7 1/2	4 10 0	0 0 0—Jan., 1853.
20000	Mexican and South American (cop.), Mexico	9	8 1/2	8 1/2	33 4 0	—
47000	Royal Santiago (copper), Cuba	12	32	32 1/2	21 17 6	2 0 0—June, 1853.
10000	San Joaquin del Rey (gold), Brazil	10	32	32 1/2	1 16 6	0 4 0—Feb., 1853.
43174	United Mexican (silver), Mexico	28 1/2	4 1/2	4 1/2	—	—

## MINES WHICH HAVE SOLD ORES.

Shares.	Mines.	Paid.	Last Price.	Present.	Dividends.	Last Paid.
4000	Alston Moor Mining Co., Cumb.	1	1	1	—	—
3000	Altarnun Con. (tin, cop.), Altarnun	2	2 1/2	2 1/2	—	—
10000	Alton Consols (sl. lead), Cornwall	2	2 1/2	2 1/2	—	—
6000	Ashford Consols (sl. lead), Cornwall	1	1 1/2	1 1/2	—	—
4000	Augusta Con. (cop.) Bridestown	20 6d.	1 1/2	1 1/2	—	—
940	Balmuccia (tin), Uny Lelant	18	8 9	8 9	—	—
508	Beil and Llanarth, Gwynnapp	15	15 17	15 17	—	—
6000	Birch Tor and Viller, Lydford	2	2 1/2	2 1/2	—	—
6000	Bishopstone, Glamorganshire	17 13s. 1/2	1	1	—	—
935	Bodmin Con. (lead), Wadebridge	10	7	7	—	—
5144	Bodmin West Downs (tin, cop.)	1	1	1	—	—
120	Bollward and Nanpan (tin)	20	18	18	—	—
4000	Borlondale Consols, Plymouth	5 6d.	2 1/2	2 1/2	—	—
240	Boscon (tin), St. Just	20 1/2	25	25	—	—
2500	Boscon (tin), St. Just	1	1	1	—	—
2500	Bottle Hill (copper), Plymouth	3	1 1/2	1 1/2	—	—
4000	Braich Goch Slate Quarries	—	—	—	—	—
4000	Bronfild (lead), Wales	5 6d.	1 1/2	1 1/2	—	—
2790	Bryn-Arian (lead), Cardiganshire	3 1/2	3 1/2	3 1/2	—	—
—	Budnick Consols (tin), Perran	6 1/2	8	8	—	—
500	Burpary (tin, cop.), Gwinnear	1	1	1	—	—
2500	Bwch (sl. lead), Cardiganshire	4	3	3	—	—
5000	Caer-Gwynon, Cardiganshire	3	3	3	—	—
1024	Caerphilly & Carrington, S. Wales	3 1/2	4	4	—	—
4000	Calstock Consols (copper)	4 1/2	2 1/2	2 1/2	—	—
4000	Calstock United (tin and cop.)	2 1/2	2 1/2	2 1/2	—	—
1024	Cardigan Consols, St. Cleer	1	17	17	—	—
2000	Cardona (tin, copper), Gwynnapp	6 1/2	2	2	—	—
2048	Carnarvon (tin), St. Just	15 1/2	1 1/2	1 1/2	—	—
1056	Carvannall (copper), Gwynnapp	37 1/2	5 1/2	5 1/2	—	—
2048	Carradine (tin), St. Colomb	2 1/2	1 1/2	1 1/2	—	—
200	Carradine (lead), Cardiganshire	33	110	110	—	—
2000	Charlton United, Cornwall	1	1 1/2	1 1/2	—	—
2500	Clara	3 1/2	1 1/2	1 1/2	—	—
1024	Cliff & Wentworth (tin, cop.)	4 1/2	5 1/2	10 1/2	—	—
2500	Coed Mawr Pool (lead), Llanrwst	10	10	10	—	—
500	Court Grange, Cardiganshire	10	10	10	—	—
1056	Crabtree Moor (cop.), St. Cleer	27 1/2	10 1/2	10 1/2	—	—
600	Craig-y-Bryn (lead), Llanfyllin	8 1/2	7 1/2	7 1/2	—	—
256	Cran and Belyva, Camborne	25 1/2	17 1/2	17 1/2	—	—
512	Creechbarrow (copper), Cornwall	13 1/2	35	35	—	—
1000	Crookhaven (copper), Cork	10	20 1/2	20 1/2	—	—
2000	Cubers (silver-lead), Cornwall	2	2 1/2	2 1/2	—	—
10000	Cwm Daren (lead), Cardiganshire	11s. 6d.	2	2	—	—
4000	Cwendrye Rock & Green Lake	—	—	—	—	—
—	Ditto	3	3 1/2	3 1/2	—	—
1900	Cwm Ffyn (lead), Cardiganshire	8 1/2	3 1/2	3 1/2	—	—
2800	Cyffanddud Fawr, Llanegryn	1	1	1	—	—
3000	Dalriach (cop. lead), Brecon	1 1/2	4	4	—	—
1000	Darren (sl. lead) Cardiganshire	4 1/2	4	4	—	—
3907	Darren & Courtenay (copper)	3 1/2	3	3	—	—
1024	Devon & Cornwall United (cop.)	8s. 6d.	8	8	—	—
1600	Devon Great Tincroft (tin)	—	—	—	—	—
6000	Devon Kapunda (cop. & sl. lead)	3 1/2	2 1/2	2 1/2	—	—
4000	Dolfrwynog (cop.), Merioneth	1 1/2	1	1	—	—
5000	Droit Moor (tin), Saneered	1	1 1/2	1 1/2	—	—
—	Duke of Cornwall (copper)	—	—	—	—	—
3000	Dyffrynog (lead), Wales	11 1/2	12	12	—	—
4000	East Alfred Consols (lead)	15s. 6d.	2 1/2	2 1/2	—	—
396	East Ballewidden, Saneered	2 1/2	2 1/2	2 1/2	—	—
256	East Bastet (copper), Redruth	15	34	32	—	—
2500	East Birch Tor (tin), Devon	3	3	3	—	—
1948	East Crowndale (cop.), Tavistock	6	5 1/2	5 1/2	—	—
4000	East Gunnis Lake June, (cop.)	1 1/2	2 1/2	2 1/2	—	—
1024	East Halamanning (tin)	1	2 1/2	2 1/2	—	—
512	East Seton & W. Maude, Redruth	11 1/2	4	4	—	—
4000	East Tamar (sl. lead), Beerfields	1 1/2	1 1/2	1 1/2	—	—
2048	East Tolgus (copper), Redruth	13 1/2	84	84	—	—
2048	East Wheal Bore, Tavistock	1	5	5	—	—
2048	East Wheal Gorge, Walkham	3	5	5	—	—
512	East Wheal Leisure, Perran	16	10	11 12	—	—
1024	East Wheal Margaret (tin, cop.)	4 1/2	16 1/2	11 12	—	—
4000	East Wheal Russell, Tavistock	27 11s. 12	9 1/2	9 1/2	—	—
564	Eaton Mountain, Derbyshire	10	12 1/2	12 1/2	—	—
536	Ecton Mountain (lead, copper)	5	5	5	—	—
1280	Espar Loe, Llanfihangel-y-Croft	7	20	20	—	—
32	Four Dargue (lead) Cumberland	12	43	43	—	—
2000	Gall-y-Naen, Merioneth	—	—	—	—	—
4000	Gareg (cop.), Flint	3 1/2	1 1/2	1 1/2	—	—
2048	Gelfo (cop.), Wales	9	6	6	—	—
2500	Georgia Consols (tin), St. Ives	5 1/2	2 1/2	2 1/2	—	—
12000	Gorn (lead), Llanidloes	12s. 6d.	20	20	—	—
243	Grambler & St. Aubyn (copper)	94 1/2	30	30	—	—
900	Great Beam (tin), St. Austell	20	24	24	—	—
6750	Great Bryn Consols (cop., tin)	1 1/2	3 1/2	3 1/2	—	—
4000	Great Cowarth, Merioneth	3 1/2	3 1/2	3 1/2	—	—
30000	Great Grinnis (copper)	—	—	—	—	—
1024	Great William Alfred, Piblock	24 1/2	37	38 10	—	—
800	Gravelly Gade (tin), Wales	2 1/2	1 1/2	1 1/2	—	—
1025	Guiana Mine, Camborne	5s. 11d.	2	2	—	—
512	Halamanning and Croft Gt. St.	4	60	55 60	—	—
512	Hawke's Point, Uny Lelant	9 1/2	3	3	—	—
8152	Hawknor (tin & cop.), Calstock	7 1/2	1	1	—	—
1000	Hennock (silver-lead) Hennock	7	5 1/2	5 1/2	—	—
4000	Hington Down Cons. (copper)	2 1/2	5 1/2	5 1/2	—	—
2000	Kennerre and West of Ireland	1	1 1/2	1 1/2	—	—
1024	Keneggy (copper), Breage	8s. 2d.	10	10	—	—
1200	Kewick (lead), Portlancott	1	1	1	—	—
800	Kilbricken (silver-lead), Clara	4	3 1/2	3 1/2	—	—
1024	Min (copper), Gwinnear	3 1/2	2 1/2	2 1/2	—	—
252	Llanarth Con. (cop.), Gwynnapp	4	4	4	—	—
1024	Leads and St. Aubyn (tin, cop.)	1 1/2	2 1/2	2 1/2	—	—
12000	Leeds Town (tin, cop.), Crovan	2 1/2	1	1 1/2	—	—
256	Lelant Consols (tin), Uny Lelant	6s. 1/2	20	19 1/2	—	—